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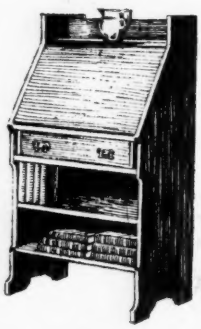

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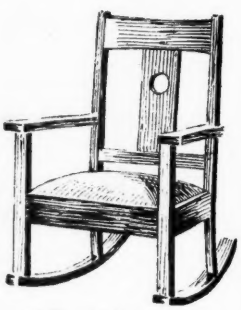

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TENDON TRANSPLANTATION IN OLD NERVE INJURIES.[1]

By **Hugh R. G. Poate, M.B., Ch.M. (Syd.), F.R.C.S. (Eng.),**
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I was asked recently to give evidence in court regarding the condition of a boy who had sustained a severe injury of the upper arm. In the course of my remarks I stated that later on it might be possible to do something towards improving the function of his hand by means of tendon transplantation. To my surprise, this suggestion was assailed in a most violent manner by another medical man who has conducted a successful country practice for some years. He finally informed his honour that "he would never consent to any patient of his undergoing such an experiment; that while such ideas were all right in the laboratory, it was a very different matter when they had to be applied to human beings." Unless this doctor admits his ignorance or the boy's parents change their medical adviser, this lad will be condemned to go through life as an inefficient or even unproductive member of the community through the ignorance of one who should have known better. This little experience is my sole excuse for again bringing up this subject, which has already been discussed before our Branch of the British Medical Association and to which references have appeared frequently in the columns of our *Journal*.

No claim is made as to any originality in the subject matter and in presenting it to you, I merely adopt the advice of that great man, Sir Robert Jones, who says that those who have knowledge, must repeat and go on repeating obvious facts, possibly known to the majority, but realized only by a minority.

So by these notes and a few illustrations of results, I hope to try and stimulate some interest in an ordinary every-day subject.

At first I intended discussing the subject of tendon transplantation as a whole, but it is of such vast proportions, particularly in the late stages of infantile paralysis, that the time-limit of 20 minutes for the reading of a paper would prove totally inadequate. Consequently my remarks must be confined only to conditions resulting from injuries to nerves, when nerve suture is either impossible or has failed.

General Considerations.

The sole object of tendon transplantation is to restore the function of a disabled limb, in whole or in part, by reconstructing or improving the muscular

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on June 24, 1921.

balance of the affected region. Unless this aim be kept clearly in mind and each case be judged on its merits, from both anatomical and physiological points of view, unnecessary and even unjustifiable operations may be performed and thus discredit may be brought on an otherwise legitimate and promising procedure of vast and far-reaching results. One has but to compare the picture of a neglected paralysis of the radial nerve with that of a similar lesion treated by tendon transplantation to see that results which may be termed brilliant—from the patient's point of view, at any rate—are well within the bounds of possibility. In order to secure good results a fairly rigid selection must be made and each case must be considered on its individual merits; firstly, as regards what tendons require assistance and, secondly, whence that assistance may be obtained. Care must be taken that all deformities and contractures have been corrected and that the joints in the affected area are fully mobile before any operation be undertaken, as an otherwise successful tendon transplantation may be rendered useless. This point is of such fundamental importance that I almost omitted mention of it, for in doing this work it becomes second nature not to consider tendon transplantation until the limb is in good condition.

In order to obtain the best function, special attention must be given to insure the direction of the transferred or active tendon being as near as possible to that of the receiving or paralysed tendon and in doing this the surgeon should always avoid carrying the tendon round in a sharp bend; otherwise loss of power must result.

In selecting muscles for transplantation of their tendons it is a fair working rule, other mechanical factors being equal, to try to obtain an amount of muscle substance in the transferred muscle equal to that of the paralysed one, since substitution of small muscles for large ones is not desirable. For instance, the long extensor of the hallux is practically useless to replace paralysed peronei.

In bringing the tendon to its new position, I prefer, if possible, to pass it through the subcutaneous fatty tissue, as by so doing the nutrition is more rapidly established and there is less liability to adhesion than if it be taken through the deeper tissues other than tendon sheaths.

One tendon can only be made to subserve one function, *i.e.*, it is waste of tissue and of time splitting a tendon and expecting various parts to take on independent function. As a rule, in the cases under discussion, it is a tendon-to-tendon implantation that is carried out, but in some situations periosteal insertion is possible. If necessary, silk extension may be used, but I have very seldom found it expedient to do so.

As regards suture material, most of my work has been done with fine chromicized catgut, but when working with large-sized tendons or in doing a periosteal insertion, a thick plain catgut is quite sufficient.

In the majority of cases I avoid using a tourniquet, although it means extra time added for the operation, for I feel sure that I have had more perfect results in a shorter period without its use than in the cases where I did use it. The incisions should be sufficiently free to allow of necessary operative manipulation, but if possible the scars should not be actually over the newly transplanted tendon, so as to avoid skin adhesions. The method of union adopted, as a rule, was to pass the active tendon through a slit in the paralysed one, first having denuded both of their sheath or fibrous covering. as well as roughening them where they are to be brought into apposition. When the tendons are being sutured together, they must be kept fairly tense with the limb in the fully corrected position, otherwise slackening is bound to occur and a full functional result is not obtained. If the active tendon has to be brought any distance through the tissues to its new position, the track is made for it by pushing a blunt dissector along the required plane and direction and then the tendon is drawn down the path so made.

The limb must be put up in such a fashion as to maintain the corrected position for the requisite period of time, usually on a plaster or metal splint. Ordinarily gentle passive movements may be instituted after a few days, but no undue strain should be allowed for some six to eight weeks, during which time the fully corrected position should be maintained.

After a fortnight light massage is allowed, along with passive movement on the splint. At the end of three weeks or so re-educational exercises are commenced and, if necessary, the transplanted muscle is helped to orientate itself by gentle stimulation with a Bristow faradic coil. The patient usually has full control established in 8 to 10 weeks and by 12 weeks needs no further treatment, although even after that as the transplanted muscle carries on its new work, it will continue to develope in size and power for some time.

Operative Procedures.

A.—The Upper Limb.

The Axillary Nerve (circumflex nerve).—This is seldom irreparably damaged, apart from an injury which has resulted in loss of the head or upper part of the humerus. In such cases the patient is left with a flail joint consequent on paralysis of the deltoid muscle along with very feeble power of elbow joint movement, because of the slackness of the muscles of the upper arm. Unless an ankylosis of the shoulder joint can be secured in the optimum position, the limb is not of great use. In one case where several attempts at ankylosis had failed, a very useful limb was secured by transferring (*a*)

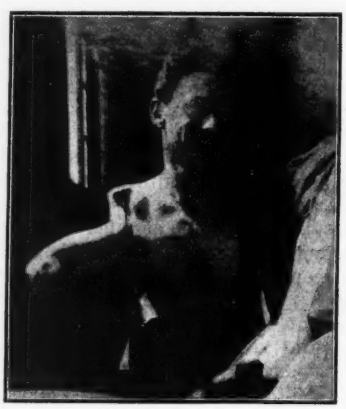

FIGURE I..
Paralysis of the deltoid, due to injury of the axillary nerve. Loss of the head and neck of the humerus.

the clavicular part of the *pectoralis major* to the acromion and lateral part of the clavicle, (*b*) the long head of the biceps to the acromion and (*c*) the long (scapular) head of the triceps to the acromion. This allowed the patient to fix the upper end of the

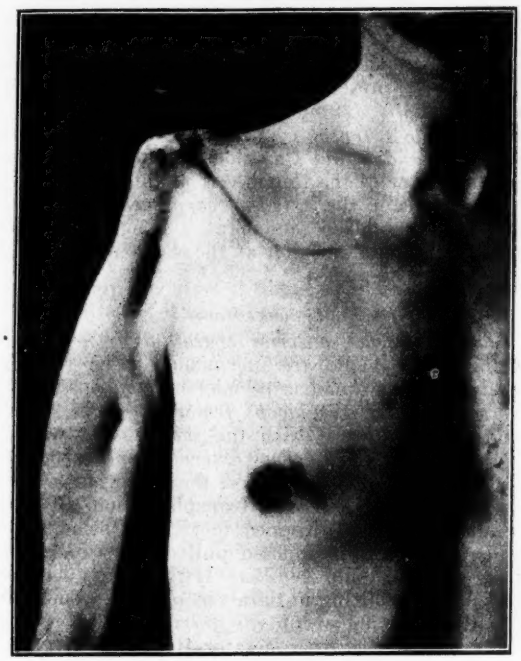

FIGURE II..
Appearance of the shoulder after operation, as described for injury to the axillary nerve.

humerus by muscular contraction and this, with the normal range of scapular movement, gave a fairly useful limb, far from perfect, but, as the patient put it, "it was a veritable God-send to be able to do something with the arm."

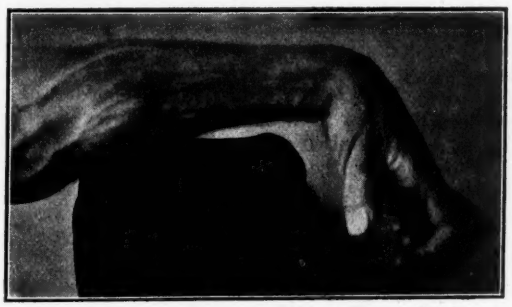

FIGURE III..
Deformity resulting from a radial nerve paralysis which had been neglected.

In these cases, if the head and neck of the humerus have been destroyed, there is added disability due to loss of the attachments of the scapular muscles.

The Radial Nerve (musculo-spiral).—Injuries of this nerve are of very common occurrence and in spite of the fact that it has given the best results of any nerve after suture, there have been numerous cases where tendon transplantation has been called upon to restore function. The necessary operation is a tedious one and the various steps must be carried out carefully and conscientiously, but the results

FIGURE IV..
Dorsi-flexion of the wrist and fingers after tendon transplantation for radial nerve paralysis.

have been most gratifying to both patient and surgeon. Even after much experience of this operation, the time required to perform it is about an hour and a half.

First the *pronator teres* is exposed at its insertion,

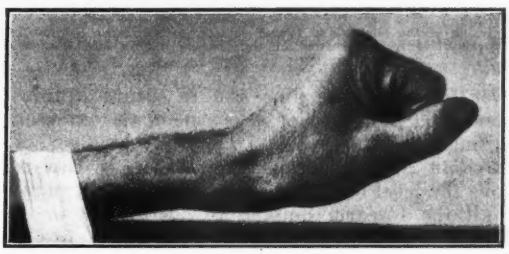

FIGURE V..
Dorsi-flexion of the wrist after tendon transplantation for radial nerve paralysis.

which is freed from the radius and lifted well up. The tendon is then fixed into both radial extensor tendons, while the wrist is held fully dorsiflexed and all slack is taken up. Next an incision is made to expose the short thumb extensor, to which

FIGURE VI..
Neglected case of median and ulnar nerve paralysis.

the *palmaris* is drawn down and sutured. Finally the *flexor carpi radialis* is inserted into the four tendons of the common extensor and also the long ex-

tensor of the thumb, being brought down obliquely over the lateral border of the radius. The superficial fascia is sutured with catgut over the tendons before the skin is closed. Personally, I go no further and as you see, the functional result is excellent (some men have taken up wharf labouring, wheat stacking, farming etc.), but it is advised to free the *flexor carpi ulnaris* from its insertion; to strip it from the

FIGURE VII.
Flexion of the fingers and thumb obtained in the same patient five weeks after transplantation of the *brachio-radialis* into the *flexor sublimis digitorum* and *flexor longus pollicis*.

lower fourth of the ulna and to suture it into the *extensor carpi ulnaris* or into some of the extensors of the fingers.

Median Nerve.—Irreparable injury of this nerve above the level of the elbow joint results in paralysis of all the forearm muscles except the *flexor carpi ulnaris* and the medial half of the *flexor profundis digitorum,* which are supplied by the ulnar nerve. The resulting disability is thus very serious, but some improvement may be effected by fixing the lateral tendons of the *flexor profundis* into the active medial tendons and bringing the *flexor carpi ulnaris* into the tendons of the *flexor sublimis digitorum.* In addition, the long radial extensor may be inserted into the *flexor longus pollicis.* Fortunately, it is relatively easy to suture the median nerve; recovery of some power in the forearm muscles is the rule, even though the intrinsic muscles in the hand remain paralysed and the sensory disturbances persist to a large extent.

Ulnar Nerve. The resulting paralysis, as far as the forearm muscles are concerned, is not very great. The main disability is due to loss of the function of the intrinsic muscles of the hand. Loss of the *flexor carpi ulnaris* is compensated for by the remaining flexors of wrist and fingers and is hardly worth troubling about. As regards the deep flexors of the fourth and fifth finger, these may be attached to the active tendons of the middle and index fingers, but for all the improvement of function resulting it is hardly worth doing. An ulnar nerve paralysis is not a very great handicap and there are many men earning a living dependent on the use of their hands in spite of this disability.

Combined Median and Ulnar Nerves.—This is a very serious condition and renders the hand useless, so that any attempt to restore function is permissible. Unfortunately these cases have usually been kept so long in the hopes of securing nerve recovery that a fibrosis has occurred in the musculature of the fore arm akin to that of an ischæmic paralysis accompanied by contractures and deformities of the fingers. As a result, the few cases I have seen have not been suitable for tendon transplantation, but, should a favourable case present itself, I intend to bring the *brachio-radialis* (*supinator longus*) into the *flexor sublimis,* the *extensor carpi radialis longus* into the *flexor profundus* and the short radial extensor into the long flexor of the thumb. It might also be advisable to transfer the *extensor carpi ulnaris* into the corresponding flexor tendon at a second operation, provided that dorsiflexion at the wrist would not be too seriously impaired.

B.—Lower Limb.

Femoral Nerve (*anterior crural nerve*).—Injuries of this nerve alone are uncommon. The resulting paralysis of the quadriceps may be compensated for by transplanting the *biceps femoris* into the patella and reinforcing this with the *sartorius* or *gracilis.*

Common Peroneal Nerve (*external popliteal nerve*).—Although a common injury, the condition is not a favourable one for tendon transplantation. The deformity is one of "dropped foot" with some *talipes varus* due to the unopposed pull of the *tibialis posterior* and the *tendo Achillis.* If the injury has been partial and resulting in paralysis of the peronei only, then the insertion of *tibialis anterior,* if transferred to the base of the fifth metatarsal bone, will greatly restore the balance of the foot. Conversely, if the muscles of the anterior tibial group are paralysed and the peronei remain active, the *peroneus longus* tendon can be transferred to the insertion of the *tibialis anterior.* In cases of complete paralysis the only operative procedure worth attempting is that of "tendon fixation," in which the distal portions of the *tibialis anterior* and *peroneus longus* tendons are really converted into ligaments. The operation is simply done and proves an effective correction for the dropped foot. It is best to expose the *peroneus longus* tendon some 10 cm. above the lateral malleolus and to cut it across completely. The tendon is again exposed as it turns over the lateral border of the foot into the sole. A hook is passed under it and the divided tendon pulled down out of its sheath, leaving the attachment to the sole intact. The anterior border of the tibia is then exposed some 5 to 7 cm. above the ankle joint and the *peroneus longus* tendon is drawn up to this new position, deep to the transverse and cruciate ligaments (anterior annular ligaments), if possible. The tibia is then drilled or grooved and the tendon is fixed into it along with the distal end of the anterior tibial tendon, which is now exposed and should be divided. The foot must be put up in an over-corrected position and held there not only while the tendons are securely fixed, but for some two months afterwards by means of a plaster casing.

Sciatic Nerve.—Complete paralysis of this nerve is not, as a rule, a very great disability as far as walking is concerned. It rarely calls for any operative

interference for correction of deformity other than a tendon fixation as done for injury of the peroneal nerve if foot drop developes or for an inlay bone graft into the lateral aspect of the tarsus to render the foot more stable and to prevent any deformity occurring at the mid-tarsal joint.

Conclusion.

It will now be seen that the great scope for tendon transplantation after nerve injury lies in the upper extremity, for in these cases we deal with a condition of total paralysis of a nerve as contrasted with the partial paralysis resulting from infantile paralysis, when effective tendon transplantation has to be applied more commonly to the inferior extremity. It seems strange at first to transfer tendons to carry out movements directly antagonistic to their usual habit, but it is surprising how quickly re-education is established and how soon the new function comes under "group" control in its altered position.

As a final word, I cannot express myself better than in quoting some remarks of Sir Robert Jones regarding this subject as "indicating the great and ever-increasing field of usefulness that is opened up by utilizing tendon, whether that of an active or a hopelessly paralysed muscle, for the restoration of movement or the correction of deformity. One is enabled thereby to restore to a greater or less extent the economic efficiency of an individual who would otherwise sink into the position of a non-productive and dependent member of the community."

I wish to express my great indebtedness to the resident medical officers and to the members of the nursing staffs and masseuses of the Royal Prince Alfred and Prince of Wales Hospitals for their efficient and enthusiastic help and co-operation in this work. The excellent results obtained stand largely to their credit.

LIMITATION OF MOVEMENT AT THE METACARPO-PHALANGEAL JOINTS: ITS CAUSES AND TREATMENT.[1]

By **D. J. Glissan, M.B.,**

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Limitation of movement at the metacarpo-phalangeal joints may be in the direction of flexion or extension, either alone or combined with loss of adduction and abduction.

The most common type is limitation of flexion, with which I propose to deal chiefly in this paper. I proposed to consider only those cases in which passive, as well as active, movement is diminished or lost; this will exclude cases due primarily to paralysis of the muscles acting upon the joints in question.

The degree of limitation may vary from slight stiffness to bony ankylosis. The lesion may be apparent through the loss of function involved or there may, in addition, be a deformity of hyperextension of the joints.

[1] Read at a Meeting of the New South Wales Branch of the British Medical Association on June 24, 1921.

Two factors render discussion of the lesion in question important:

(*i.*) The comparative frequency with which it is seen, particularly in military practice.

(*ii.*) The serious loss of function which it causes.

In this latter regard it is useful to remember that the utility of the hand is the measure of the utility of the whole upper limb. The latter in man is more or less a movable lever, whose function it is to support the highly specialized organ—the hand.

Whilst it is true that loss of function in any part of this lever reacts upon the full utility of the hand, it is even more evident that any loss of function of the hand itself is a much greater evil.

Loss of function at the metacarpo-phalangeal joints, inasmuch as it lessens the utility of the hand as a grasping and manipulative organ, is one of the most serious disablements that can befall the upper limb.

Anatomy.

A consideration of the structures about the joints and governing them and of the actual articular surfaces and ligaments is necessary for the full understanding of the pathology of the limitation and of the means to prevent or overcome it.

The palmar fascia is composed of dense fibrous tissue, the direction of whose fibres runs in the long axis of the metacarpus and fingers; it crosses the joints anteriorly by means of the terminal bands connected with the sheaths of the flexor tendons and proximal phalanges of the four inner fingers. Contraction of portion or the whole of this fascia causes limitation of extension, as in Dupuytren's contraction.

The palmar metacarpo-phalangeal ligament is a well-defined band of fibrous tissue which crosses the palm just distal to the line of the joints. It is connected with the structures immediately about the latter and when contracted, tends to draw the bases of the phalanges together and by interposing a rigid strand across the front of these phalanges, to impede the flexion of the joints.

That this is the case may be seen by the check to flexion caused by rendering the ligament taut, as when the fingers are strongly abducted. It will be found that in this position the range of flexion of the middle and ring metacarpo-phalangeal joints is greatly diminished.

The transverse metacarpal ligament binds together the heads of the metacarpals and, if contracted, causes loss of freedom of movement.

Flexion of the four inner joints is performed by the lumbrical muscles, small, fleshy, delicate and highly specialized to perform rapid, well controlled movements. They move the joints through a range of 90°. They are quick to react to disuse or injury and very difficult to restore to function if this is once lost. The superficial and deep flexors of the fingers also pass in front of the joints. They are capable of causing a gross flexion at the latter and through the vulnerability of their tendons and tendon sheathes may play an important part in causing limitation of movement.

Extension of the four inner joints is carried out by the *extensor communis digitorum* with supplementary extensors for the index and little fingers.

Shortening of these muscles through any cause brings about and assists to maintain limitation of flexion.

It must be remembered that, although the tendons of these muscles help largely to form the posterior ligaments of the metacarpo-phalangeal joints, they maintain in their passage across the line of the joints their identity as active tendons. Hence any strain placed on the posterior ligaments of the joints is borne not only by that portion which serves as a ligament, but by the muscle as a whole. This, I think, explains why a gap appears over the dorsum of the stiff joint when the latter is forcibly flexed, as pointed out by Shaw.(1) The shortened extensors form a bar to flexion, but there is sufficient elasticity in the whole length of the muscle to allow a slight degree of stretching on forced flexion.

The extensor tendons of the three inner joints are united over the metacarpus by slips which limit independent flexion on the part of any one of these joints in the normal condition. Adduction and abduction of the joints is carried out by the palmar and dorsal interossei respectively. These, like the lumbricals, are small, highly specialized muscles, very susceptible to injury or disease.

On the dorsum the capsule cannot be demonstrated independently. The corresponding extensor tendon is adapted in its passage across the joint to act as a posterior ligament.

The lateral ligaments are strong, well-defined bands which cross the inner and lateral aspects of the joint diagonally from the dorsal aspect of the head of the metacarpal to the palmar aspect of the base of the proximal phalanx. When shortened they help to form a bar to flexion. The palmar ligaments are thick plates of fibro-cartilage, loosely connected to the metacarpals, but firmly to the phalanges. They are connected with the lateral ligaments.

The articular surface on the head of each metacarpal is greater in extent than that of the base of the corresponding phalanx. In the movement of flexion there is a gliding action forward and upward of the phalanx on the metacarpal head, so that on full flexion the base of the phalanx has moved from the extreme end of the metacarpal to the front of the head of the latter. Mennell(2) has pointed out the necessity of bearing in mind this gliding action when administering passive movement to the joint.

Ætiology.

Any lesion affecting any tissue or tissues of the upper extremity may give rise to limitation of movement at the metacarpo-phalangeal joints either through (*i.*) immobilization or by (*ii.*) affecting directly the joints or tissues around or the muscles operating on them.

Immobilization may operate either by (*a*) splints applied for too long a period or badly or (*b*) the patient's own volition.

The ill effects of over long immobilization were seen typically in military patients as a result of the treatment of compound fractures of the humerus in the Thomas's arm extension splint. In taking this example, I do not criticize the splint, but rather the ill use of it.

Injuries, simple or compound, of the forearm, wrist, carpus or metacarpus frequently affect the joints adversely when the hand and fingers are included in splints and the latter are left on for too long. Splints may produce their ill effects not only through being left on over long, but by being badly applied and of unsuitable material.

With regard to immobilization through the patient's own volition; this factor operates very largely in adults, especially in timid women. It is a common observation that children seldom show such marked and prolonged disability of these joints even when splinting has been left on over long; the chief explanation, I think, is that the child, once free from pain and unconscious of the nature of the injury, strives to use the fingers on every possible occasion. The adult, with a full consciousness of the fact that he or she has sustained a dreaded fracture or other lesion, spends most of the waking day in efforts to hold the hand and fingers as rigid as possible, with consequent shortening of the muscles and tissues about the joint.

It is a very usual experience when dealing with patients suffering from lesions of the forearm or hand, to get the reply "I cannot" when one asks that the fingers be moved, even though active movement is quite possible. This idea of loss of movement, coupled with timidity, is the basis of many cases in adults.

There are, in addition, cases in which an apparently intense rigidity cannot be correlated with any sufficient direct or indirect organic factor and one is forced to assume that the condition is hysterical.

I saw recently at St. Vincent's Hospital a female out patient, who, whilst at work three or four weeks previously, had bumped the fourth and fifth right metacarpo-phalangeal joints. She complained of pain and inability to move the fingers. The joints in question were held rigidly extended, with the little finger synergically abducted. There was no sign of injury or disease. With a little persuasion the joints were bent passively to the full limit and held flexed voluntarily. Recovery followed.

With regard to lesions directly involving the joint or surrounding tissues or the muscles operating on them, the following observations are made: Inflammatory conditions in or about the muscles of the forearm by causing destruction of muscle or tendon substance, by setting up adhesions about the muscles and tendons, may cause limitation of movement. Such conditions as fractures of the lower end of the radius with displacement, fractures and dislocations of the carpus, dislocation of the wrist and of the carpo-metacarpal joints which interfere with the mechanics of the muscular pull and cause secondary reactions about the tendons will, unless properly reduced, cause marked disability at these joints.

Mention must be made especially of fractures of the metacarpus. If simple and without displacement, the ultimate function at the joint is perfect, provided that immobilization is not too long maintained. If compound the resulting inflammatory reaction about the adjacent tendons particularly the extensors may cause serious trouble.

In fractures with displacement movement may be affected in two ways. If there is shortening of the metacarpal, the corresponding joint is retracted up-

wards and the palmar metacarpo-phalangeal ligament effectively hinders flexion of the proximal phalanx. If there is angular deformity usually with a convexity backwards, the phalanx tends to be subluxated on to the back of the head of the metacarpal and the joint is mechanically prevented from flexing.

Lesions affecting the joint directly are amongst the less common causes of limitation of movement.

Arthritis, simple or septic, osteo-arthritis and injuries cause limitation of movement by the formation of intra- and peri-articular adhesions, bony outgrowths or bony ankylosis.

Consideration has so far been shown only for the inner four joints, since they are very much more prone to disability from the causes enumerated than is the corresponding joint of the thumb. The latter, owing largely to its independence of its fellows, the free mobility of its metacarpal and the relative strength of its intrinsic muscles, is found to be seldom affected with the disability in question. It is to be remembered that the range of movement in the metacarpo-phalangeal joint of the thumb varies in different individuals and so it is necessary in determining the normal range for the individual to compare carefully the movements of the two joints (right and left).

Treatment.

In dealing with any lesion of the upper extremity the importance of maintaining or restoring function in the hand and fingers must be kept well in mind. To few deformities is the adage "prevention is better than cure" more applicable than to the case of that under consideration. Motion at these joints is so easily lost and so tardily regained.

Immobilization for any lesion above the level of the joints and not affecting the metacarpus should extend no further than a line just above the level of the joints. The patient should be able to flex, extend, adduct and abduct the fingers actively or passively in all such cases. The hand should not be too tightly compressed by splint or bandage.

The danger of allowing voluntary immobilization must be kept in mind. Where active power is retained, it is not sufficient to tell the patient to move the fingers. The average patient will in this case save his conscience with a few purposeless, irregularly carried out movements. The importance of maintaining movement must be fully explained and every joint of the fingers and the metacarpo-phalangeal joints must be exercised to the fullest extent, at first under supervision. When this is difficult, assisting passive movements must be carried out by the surgeon or a masseuse acting under his instructions until such time as the patient can perform them voluntarily.

Immobilization should not be retained a moment longer than is necessary. It is obvious that reductions of fractures and dislocations and adequate treatment of any inflammatory condition should precede and accompany the above measures. An attempt should always be made to avoid or to reduce quickly any œdema appearing about the metacarpus, lest any stagnant lymph should become organized and help to form adhesions.

Lesions of the metacarpus may be simple or compound. In cases of simple fracture without displacement, there is little danger of loss of function at the joints, provided immobilization is discarded as early as possible and gentle active movements are commenced almost at the outset.

With displacement causing shortening or angulation every endeavour must be made to restore anatomical alignment. If manipulation fails, open operation should be performed to secure this.

In the treatment of lesions of the wrist and hand necessitating the immobilization of the joints, Sinclair's racket splint will be found admirable. It is light, easily made, readily applied, causes no compression of the delicate structures of the hand and allows ready accessibility to any diseased area for dressing, etc.. More important still it is possible by means of this apparatus to maintain traction on the structures about the joint, thus minimizing their shortening and to maintain abduction at the joints, thus limiting the contraction of the transverse tissues of the palm, particularly the palmar metacarpo-phalangeal ligament.

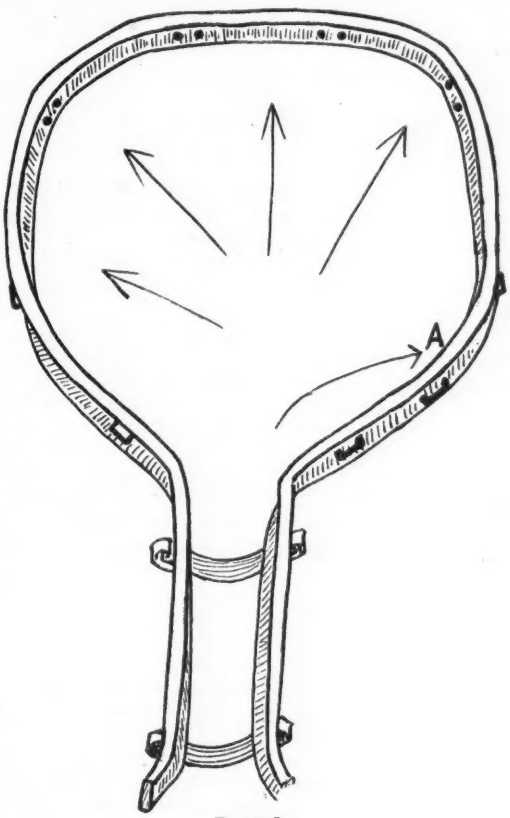

FIGURE I.
Racket Splint.

In any case in which bony ankylosis at any of the joints is inevitable, an endeavour should be made with the collaboration of the patient to determine the most useful functional position for the ankylosed joint and to maintain the latter by suitable splintage. Once

the disability is established, the underlying pathology must form the basis for the treatment to be followed.

In cases resulting from over long immobilization for an injury not directly affecting the joints, there will be found a contraction of all the tissues governing and surrounding the joints, with the exception of the lumbrical muscles, which will be weakened and over stretched. This contraction has developed gradually and can be most successfully undone by gradual methods. The problem is to restore function to the joints and hand. This means that all contracted tissues must be stretched, stretched tissues relaxed and muscles re-educated to perform their normal function.

Forced movement under anæsthesia is to be deprecated. It causes violent and severe reaction, necessitating further rest for tissues that are now torn as well as over-stretched and leaves the condition worse than at the outset.

Passive movement and massage are not more successful. It is necessary to stretch all the contracted tissues gradually and continuously.

Operations designed to divide contracted tissues cannot cure the condition. Traction and flexion are still necessary.

Many pieces of apparatus have been designed to overcome stiffness at these joints. They fall roughly into two classes: One provides continuous and more or less forced flexion. These do not allow the gliding movement that is a feature of normal flexion at these joints, nor do they apply the necessary traction to all the stretched tissues. Most of them are further open to the objection that, whilst in use, they are practically fixtures and cannot be readily and frequently removed to permit of massage, re-education, etc..

The second class of splint is more suitable. These are free from most of the disadvantages mentioned above, but they vary in their practicability, ease of manufacture, application, etc..(3)

Personaly, I consider that the splint designed by Captain Lewis, of the American Medical Service, and used at the special Military Hospital, Alder Hey, Liverpool, to be the most satisfactory of the splints of the second category. Briefly, it is of the following design. A short cock-up splint reaching no lower than a line in the palm just above and parallel to the line of the joints, carries a palmar transverse bar which extends on each side beyond the borders of the hand. This bar in turn carries a frame so shaped as to form with the latter a rectangle. It is hinged on the bar, the degree of movement being controlled by a butterfly nut on each side with necessary copper washers. The length of the frame is such that it extends beyond the tips of the fingers by about five centimetres. It is of light iron wire, the distal side being beaten flat, so that its edges face antero-posteriorly. This end is pierced by four holes, each opposite one of the fingers. Each hole had fitted a thin brass hook about 3.75 cm. long, the shank being threaded and carrying a small brass nut.

To apply the splint a loop of adhesive plaster or tape fixed with glue is attached to each finger, the loop reaching just beyond the tip of the latter. The "cock-up" is applied to the lower part of the forearm and wrist by a bandage; care is taken to see that the wrist is held securely in dorsal flexion. The palmar bar is so placed as to lie across the palm between the latter and the thumb. Each digital loop is connected by a short length of strong cord to its corresponding brass hook. Each cord is tightened by a few turns of the small brass nut working on the shank of the corresponding hook.

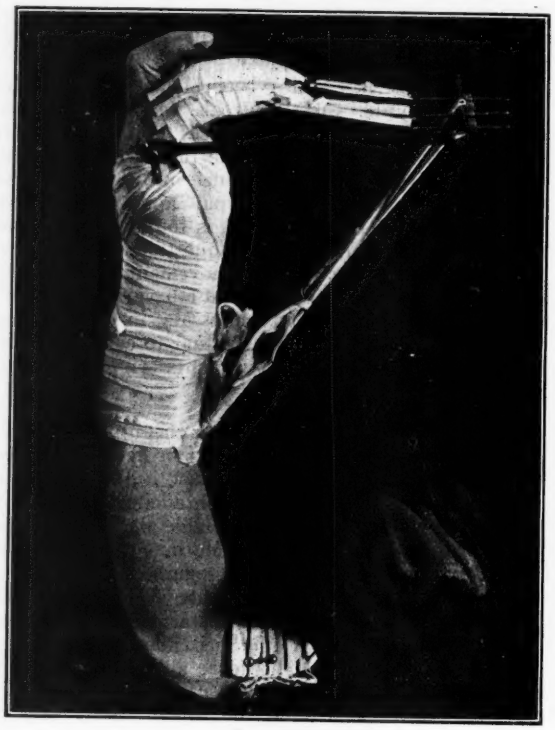

FIGURE II..
Lewis's Splint.

In applying the splint it is best to use traction only for the first two or three days and to remove it daily for massage and manipulation of the hand, particularly the tissues transverse to the joint.

Slight flexion is then commenced by loosening the butterfly nut, bending the frame slightly forward and re-tightening the nuts. The traction is then again applied to each finger. The amount of flexion can then be gradually increased, with daily removals of the splint as above.

The patient himself can adjust the flexion and traction. I have found in practice in dealing with very stiff joints that there is a tendency, particularly if the washers or the thread for the butterfly nuts are a little worn, for the flexion to become gradually undone. To overcome this I have affixed a cord running from the middle of the distal side of the frame to a small hole punched in the upper end if the "cock-up"; this, when tightened, supplements the grip of the butterfly nuts and prevents any undoing of flexion.

The advantages of this piece of apparatus are these; it is easily applied and controlled by the patient. It

is readily removed to permit of manipulation and massage of the parts about the joint and of re-education of the lumbricals, interossei and extensors.

The transverse bar, lying above and in front of the metacarpal heads, immobilizes them, whilst the phalangeal bases are being drawn forward and downward following the movement of normal flexion. Its power of traction is considerable, but gradual and constant. It thus stretched methodically all the contracted tissues controlling the joint with the exception of those running in a transverse direction to the latter, for it will be noted that the splint does not apply abduction to the fingers.

When flexion to the full range has been obtained, it is still necessary to maintain traction for some time to stretch all shortened tissues thoroughly.

Treatment designed to increase the blood supply for the atrophied tissues, as has been mentioned, must be used in conjunction with the splint. Massage and contrast or whirlpool baths to the forearm and hand are necessary. Most important of all is re-education aided, if necessary, by graduated faradic contractions for the intrinsic muscles of the hand and forearm muscles.

In the cases where the joints themselves or their surrounding or controlling tissues have been injured, treatment is difficult and productive in many cases of but poor results.

Correction of bone and joint deformities, freeing of tendons from scar, repair of tendons, resection of scars, with which may be combined the use of pedicle grafts, must be resorted to as indicated.

The mechanism of the joint must be restored as fully as possible before it can functionate normally again. The "Lewis" splint should be applied when the opportunity offers. It is to be remembered when the "Lewis" splint is used that the rate of improvement of the most difficult joint will control the rate of improvement of the remainder; thus in certain cases, it may be advisable to concentrate on the treatment of the least difficult and to obtain the maximum of flexion possible in these before deciding on the method of dealing with the more recalcitrant joints.

References.

(1) Shaw: "Ankylosis of the Metacarpal Phalangeal Joints," *The Medical Journal of Australia*, December 18, 1920.
(2) Mennell: "Massage: Its Principles and Practice," 1920.
(3) Jones: "Orthopædic Surgery of Injuries," Volume I..

Reviews.

THE CHEMISTRY OF POISONS.

A fifth American edition of the "Laboratory Manual for the Detection of Poisons and Powerful Drugs, by Dr. Wilhelm Autenreith, was published in the early part of this year.[1] It is practically a reprint of the fourth American edition, for, although the number of pages has been increased from 320 to 342, the subject matter has received only six additional pages, the remainder being devoted to an index of names not included in the previous edition and a much enlarged subject index. These additions add greatly to the convenience of the manual for reference purposes.

No rearrangement of the work has been made and, indeed, very little is necessary, as the fourth edition is admirably suited for use both as a laboratory guide and a book of reference in actual practice.

A few words may be devoted to the new subject matter. One substance, methyl alcohol, has been added to the already fairly comprehensive list and three and a half pages are given to an account of its properties, its toxic action and its identification.

Some additional tests and a few short paragraphs occupy the other two and a half pages. Among the latter, on page 2 the suggestion is made that, in treating viscera which may be offensive, the unpleasant odour may be eliminated by cooling to "— 6° to — 10°." For this purpose the cooling would doubtless be effective, but the viscera, if cooled to the temperatures proposed, would be unworkable, as the mass would form a solid block. The temperatures, perhaps, should be from 6° to 10° C..

Magnin and Zappi's procedure (p. 62) for the treatment of viscera to eliminate "ptomaines and other impurities" does not seem to be based on a sound chemical foundation. The ptomaines are bases which form salts, as do the alkaloids, and are soluble in much the same menstrua, so that it appears unreasonable to expect that they can be thus conveniently removed. "Other impurities," however, may be dealt with by this method, though the most convenient and effective way of obtaining a liquid suitable for extraction by immiscible solvents is by the liberal use of alcohol for precipitating substances liable to produce emulsions. In the case, also, of a powder containing cane sugar or milk sugar, preliminary treatment with strong alcohol will be found the most convenient method of procedure. It is doubtful whether ptomaines occur in food; ptomaine poisoning, strictly as such, probably does not occur.

The list of substances which are extracted by ether from acid solution remains the same as in the previous edition, but to this list sulphonal and trional should certainly be added. The statement that santonin, sulphonal and trional (p. 198) do not find a place in the Stas-Otto process needs revision accordingly.

The formula for cantharidin (p. 203) has been altered to that given by Gadamer, who ascribed to it the characters of an interval anhydride, the molecule of water being eliminated between two neighbouring carboxyl groups. The formulæ and properties of several derivatives are also given with corresponding alterations in conformity therewith.

The following are the new tests introduced in this volume:

Fujiwara's pyridine test (p. 37), stated to be able to detect one part of chloroform in 1,000,000 parts of water.

Para-dimethylamino-benzaldehyde test for atropine (p 104). Such tests as this for alkaloids for which few or no definite reactions are known, are very valuable.

In the section on cocaine (p. 105), two tests, *viz.*, those of Denigès and Pisani, are given, and that of Goeldner omitted.

Gugliamelli's tests for pyramidone (p. 125), in which use is made of an arseno-tungstic solution and of an arseno-tungsto-molybdic solution. The delicacy of these tests is remarkable, colour reactions being given in a solution as dilute as 1 in 750,000.

Palet's test for apomorphine (p. 129) is a modification of Guglialmelli's test for pyramidone and is an extremely sensitive one, giving indications in a solution containing 1 part of apomorphine per 1,000,000.

Among the tests for morphine the diazonium test (p. 136) is said to give good results, but such a reagent gives intense colouration with so many substances that its value appears of doubtful character.

Tests for narceine are generally not very satisfactory in practice, but a new one is included among those given on page 139. This is a chlorine-ammonia test, which produces a red colour with this alkaloid.

E. L. Warren's test for papaverine (p. 217) may prove a useful addition to the others.

A few errors which appeared in the fourth edition have not been corrected. On page 29 the "4" in the formula for tribromophenol is attached to the third instead of the fourth carbon atom. The formula for quinine (p. 119) is obviously incorrect, as mere inspection shows that the valencies of the carbon atom connecting the two ring complexes and the adjoining nitrogen are wrongly distributed.

[1] Laboratory Manual for the Detection of Poisons and Powerful Drugs, by Wilhelm Autenrieth, authorize translation by William H. Warren, Ph.D., Fifth American Edition: 1921. Philadelphia: P. Blakiston's Son & Company; Royal 8vo., pp. 342. Price, $3.50.

In the formula for apomorphine (p. 127) a double bond has been omitted in connexion with a central carbon atom. This is also done in the case of the morphine formula (p. 131), also in connexion with the same carbon atom. At the bottom of the formula for narcotine iodo-methylate (p. 139) a double bond is given connecting the two CH_2 groups. It should, of course, be a single bond. In the formula for dimethoxy-isoquinoline (p. 216) a double bond is omitted at the right hand top corner. An extra hydrogen atom should be attached to the right hand top carbon atom of nucleus in the formula for thebaine (p. 227). The empirical formula for picraconitine (p. 261) should be $C_{32}H_{45}NO_{10}$ and on page 262 the formula at the end of the paragraph for picraconitine should be $C_{32}H_{37}(OCH_3)_4(OH)NO_4(COC_6H_5)$. With regard to the last formula, however, it seems inadvisable to mix up the empirical portion of a formula with definite groups, as is done several times on this page. The formula for picraconitine would be better written $C_{32}H_{37}NO_4(OCH_3)_4(OH)(COC_6H_5)$.

On page 70 the word "conjugate" is used instead of the usual word "compound" and this is repeated in several places. On page 188 normal potassic hydrate is written n-potassic hydrate. A capital "N" is more usually the practice, but in such a book as this, where volumetric solutions are very rarely mentioned, it would be better to make use of the word normal to avoid any confusion.

The book is one which will be found extremely useful and, on account of the manner of printing and clearness generally of the graphic formulæ and the reactions shown by them, it can be highly recommended as a laboratory manual and as a guide in general toxicological analysis.

A NEW JOURNAL.

The Journal of Comparative Psychology, of which the first number appeared in February, 1921, takes the place or is a continuation of two previous journals, *Psychobiology* and the *Journal of Animal Behaviour*. It is edited by Dr. Knight Dunlap, of Johns Hopkins University, and Dr. Robert M. Yerkes, of the National Research Council and is to be published bimonthly by Williams, Wilkins Company in Baltimore. Studies contributing to the knowledge of mental function and behaviour in any organism will be dealt with. This number is made up of a short paper by English Bagby on the psychological effects of oxygen deprivation and a portion of an extensive study by John Linck Ulrich on integration of movements in learning in the albino rat, the first instalment of which appeared in *Psychobiology*, Volume II.. This work of Ulrich's, like that of Franz and Lashley's, also Americans, reveals novel features of startling importance and not only give a great impetus to the study of comparative psychology, but helps to make plain the necessity for a special journal to deal with this subject.

STATE CHILDREN IN QUEENSLAND.

The annual report of the Director of the State Children's Department of Queensland for the year 1920 is cast in the same mould as that employed for its eight predecessors. The arrangement of the report is not ideal. It would, we venture to suggest, be better if the statement began with a simple record of the children under the control of the Department and a tabular statement setting forth the numbers of the children handled in the various ways. It is possible from the report as it stands to discover what became of each child during the year, but not of those newly admitted to the care of the Department. The compiler of the report has started at the other end and has given information concerning the activities of each sub-branch of his Department.

Admissions.

The number of children admitted to the care of the State Children's Department during the year was 2,166, as compared with 2,335 in 1919. A table showing the reasons for admission reveals the same tragic story year after year. In the majority of instances the admission follows misfortune. In a not inconsiderable number it is the result of vice.

There were on the first day of the year 7,770 children under control. During the course of the twelve months 1,916 children were discharged, died or passed out of the care in some other way. The total number of children under State control at the end of the year was 8,020.

The number of deaths of State wards in 1920 was 103, as compared with 80 in 1919. Of the 103 children, 51 were infants under one year of age, 16 were over one and under two years, and 36 were two years and over.

No information is given specifically concerning the measures adopted in connexion with the 2,166 children freshly admitted. A table is published showing that of the 8,020 children under control at the end of the year; 5,197 were boarded out with their female relatives, 1.076 were inmates of institutions, 1,013 were boarded out with foster mothers, 492 were hired out, 125 were on probation, 76 were adopted, 29 were in hospitals and 12 were in institutions other than those specially instituted for this purpose.

Children Boarded Out.

Every person who has studied the question of the State control of children has arrived at the conclusion that boarding out the children with their mothers is the best method. Unfortunately, it is impossible to carry this method into effect with advantage in every case. The Department is to be congratulated on the fact that 64.6% of its chargelings could be allowed to remain with their mothers or other female relatives. It is stated that full inquiries are made in every instance and that steps are taken to prevent abuse. The monetary assistance extended to widowed mothers and others is continued until the child has attained its fourteenth year. The assistance is at times continued beyond that age when the child has secured a scholarship.

When it is found inexpedient or impossible to board a child with its mother, the Department adopts the next best method, namely, placing it under the control of some dependable foster parent who will look after the interests of the child for a small remuneration. The foster mothers are required to enjoy good moral fame and good health. No one over 55 years of age is granted a licence. A foster mother may not be in receipt of any charitable assistance. The number of satisfactory foster mothers available is not quite sufficient for the needs of the Department. Had more been available 37 babies under two years of age and 20 children between two and fourteen years of age would not have been in institutions on the last day of the year.

Institutions.

The usual reports dealing with the five State institutions and with twelve institutions controlled by religious orders are appended. It is difficult to ascertain from these short stereotyped reports how the perennial difficulties of controlling weak-minded, badly brought up or vicious children were overcome. The relatively small population distributed among seventeen institutions renders it impossible to adopt a system of classification which would serve as an ideal method for the prevention of moral and physical contamination of susceptible, but otherwise healthy, children.

Inspection.

The State children are controlled from the Head Office at Brisbane. This office serves as a sort of clearing house for the southern district and as headquarters to which all matters involving policy are referred from the other two districts. There is a Chief Inspector and three Sub-inspectors, one of whom is a lady, on the staff. It is recognized that this staff is actually too small for the work it has to perform. Moreover, the means of transport are unsatisfactory. The Director holds the opinion that money would actually be saved if motor bicycles were supplied so that the inspectors could carry out some of their controlling duties more expeditiously.

The central district office is situated at Rockhampton and is in the charge of an Inspector who has under him three assistants. The northern district is controlled from Townsville by an Inspector who has two clerks on his staff.

The work conducted by the Department is of national importance. The Director is to be congratulated on the manner in which his Department is carrying out its chief duties. If more money were available, the work could be extended with advantage in several directions.

The Medical Journal of Australia.

SATURDAY, OCTOBER 1, 1921.

The Control of Plague.

In our issue of last week we published two statements concerning an outbreak of plague in Brisbane. The facts contained in these statements are so significant and so replete with possibilities that a careful analysis is imperative. Concerning the main fact, little need be said at the present time. Plague has been discovered in Australia. So far three persons have died of the imported disease and it would be extraordinary if there were no further infection and no further deaths. No one can predict the extent of the outbreak. Good fortune and large catches of rats may prevent a serious epidemic. The Federal Health Department is too well aware of the appalling destruction to human life caused by this deadly disease in countries like India after it has dug itself in and has become endemic, to regard the matter lightly. In India, where a quarter of a million people die of plague each year, the cost of combating the scourge is prohibitive. At the beginning of an outbreak there is a good prospect of gaining the mastery over the infection at a relatively small cost.

The story of the outbreak in Brisbane is more disquieting than the fact of one or two deaths from the disease. The Department of Health of the Commonwealth is charged with the control of quarantine and with the measures aiming at the control of dangerous infections threatening the continent as a whole. The Departments of Public Health of the States have the duty of notifying the Commonwealth authority of the presence of any quarantinable disease within the areas of their jurisdiction. In the case of plague the Commonwealth authority has the duty of initiating such measures as may be held to be necessary to keep the disease in check and to prevent it from spreading from one State to another. On August 23, 1921, a man died "rather suddenly" in Brisbane. The suspicion was at once aroused that the cause of the death might prove to be plague. The State Department of Health was acquainted with the facts and probabilities. Bacteriological investigations were at once undertaken by the State Micro-biologist. Certain precautions were adopted in regard to the danger of infection from the body of the dead man and in regard to the possibility of a spread of infection by those who had been in personal contact with him during his brief illness. These facts clearly indicate that the Queensland Department of Public Health had official cognizance of the probable nature of the infection. The proper course, as demanded by the constitution, would have been to have notified the Commonwealth Health Department on August 23 or 24, 1921, of all the attendant circumstances. It would then have been the duty of the Commonwealth health authority to have put into operation the whole of its machinery for the purpose of tracing the source of the infection, of preventing the infection from re-entering the Commonwealth from ships sailing along the coast, of controlling the spread of infection from the known focus to other parts of the Commonwealth and of relieving the State health authority of the responsibility in regard to any further progress of the outbreak. No notification was sent to the Department of Health for Australia. A week later infected rats were discovered. Still no information was given to the proper authority. On the twelfth day it was found that the infection among the rats had spread to a considerable distance from the original focus. On September 13, 1921, *i.e.*, three weeks after the suspicion had been aroused, the State Health authority notified the Commonwealth authority. For three weeks the Commissioner of Public Health improperly kept secret information of the most vital importance to the whole of Australia. No explanation of this attitude has, as far as we are aware, yet been offered. It is not improbable that the Commissioner was acting under instructions from his Minister. His fault would in these circumstances be less serious, although he would have gained the approval and sympathy of the enlightened portion of the community had he preferred resignation to obedience. In the meanwhile, a ship left Brisbane and on its arrival in Sydney, dead rats were discovered, some of which were found to be infected with plague. Fortunately the quarantine authorities had already made preparations when this infected ship arrived. The danger of a second focus

of infection has thus been met, at all events for the present.

The difficult task of safeguarding Australia against invasion by plague-infected rats has thus been rendered a thousand times more difficult by the three weeks' delay. In the days before federation, independent action on the part of each Colony was excusable. To-day, a fifth of a century after the six artificial segments of this continent have been joined into one great Commonwealth, such an attitude is incomprehensible. We have pleaded for many years for true unification of the endeavour to prevent disease. The problems are the same north and south, east and west. The measures that should be adopted, should not vary, but should be the best in each locality. There is no room for seven authorities, for seven sets of health laws, for seven different methods of attacking the same problems. The exhibition of irresponsible differences between the States in the case of epidemics, such as was witnessed during the influenza scare, is not creditable to any country. The history of the outbreak of plague in Brisbane is another reminder that the time for the handing over of the control of the public health by the States to the Government of Australia is considerably overdue. If our criticism of the responsible authorities in Queensland has been unduly severe, we should be ready and willing to withdraw every word and to apologise, but on the available evidence it appears not only to be justified in the public interest, but to be necessary. The safety of the Australian people is involved.

HICCOUGH.

Singultus or hiccough is a phenomenon which has always been of interest to the physician. To the layman it is an excuse for a hearty laugh at the dietetic indiscretions of a baby or at the imitations of a bibulous party on the stage. But to the physician it is frequently the signal of a fatal ending of his patient's illness. It is a reflex phenomenon of rather complex associations. There is an afferent impulse to the respiratory centre in the medulla and there are efferent impulses along the phrenic nerves to the diaphragm and along the laryngeal branches of the vagus to the glottis. The peculiar sound which has given origin to its onomatopœic name, is caused by a quick descent of the diaphragm, followed by a sudden closure of the glottis. The column of air which rushes down the pharynx to fill the partial vacuum within the chest, is interupted sharply by the closed glottis, the sudden vibration of which produces the characteristic "hic" sound. The afferent paths are more variable and complex. In the majority of instances the impulse reaches the respiratory centre by way of the phrenic nerves and takes its origin from a stimulus in or about the diaphragm. Inflammatory abdominal conditions, such as acute gastro-enteritis, an inflamed gall bladder or a strangulated hernia, may provoke hiccough of a persistent nature, the onset of which is usually regarded as an unfavourable portent. Possibly the onset of the symptom denotes a spread of the inflammatory process beyond the barrier of resistance to the invading organism. Irritative as distinct from inflammatory conditions act similarly, but have a less serious significance. The unwise consumption of intoxicating beverages and the ingestion of excessively hot or cold foods may act in this way. An interesting form of hiccough occurred in association with severe gun-shot wounds of the chest or upper part of the abdomen during the war. In these cases the phrenic or vagus nerve was either directly involved in the trauma or was later irritated by the spread of the resulting inflammation.

The afferent stimulus need not, however, have a peripheral origin. In myelitis of the cervical region of the cord, whether due to injury, a new growth or a vascular lesion, hiccough is a characteristic symptom. Here the stimulus acts on the spinal centre of the phrenic nerve. The symptom may be produced more directly by actual irritation of the medullary centre, as by a new growth at the base of the brain.

Dr. Harry Schultz de Brun has collected all the causes of singultus into an imposing classification.[1] He has not attempted to classify them on an anatomical basis, but has amplified and complicated the classification of the late Sir William Osler. Dr. de Brun recognizes seven distinct types, simple, inflammatory, irritative, traumatic, specific, neurotic and idiopathic. An examination of the examples given under each heading shows that they can in no way be described as "distinct." Many forms, for example, are described as inflammatory when they might with equal truth be called irritative. By "simple" hiccough he means singultus from some common physical cause, such as a sudden exit from a hot theatre into the cold air of the streets. Though the cause of this form is simple enough, its mechanism of production is sufficiently complicated to be unknown. What he means by "specific" hiccough is even less obvious. As an example of this form he quotes the singultus of uræmia, which, as every clinician knows, is a peculiarly distressing symptom of the last stages of nephritis. The onset of hiccough is synchronous in many cases with the diminution of urates and urea in the urine and the increase of uric acid and cholesterin in the blood, but whether there is a causal relationship between the hiccough and the changes in the chemical constituents of the blood has not been proved. To denominate a type as "specific" is to suggest that its causation is familiar. The truth is that this and similar classifications are artificial. They have no anatomical or physiological basis and reflect our ignorance rather than our wisdom. Medicine still labours from the false erudition of the schoolmen. Diseases

[1] *New York Medical Journal*, June 1, 1921.

have been pigeon-holed into so many types and subtypes based on the observation of clinical manifestations by early describers, that modern physicians find it difficult to view disease processes with an unbiassed mind. They have unconsciously neglected the substance while being hypnotized by the form. Modern teachers are breaking away more and more from the artificial classifications of diseases. Detailed studies of chemical and physical changes within the body are gradually inclining us to a more rational outlook on the problems of disease states. As our knowledge increases, our dependence on the old form-worship of our progenitors will dwindle.

Dr. de Brun has dealt with the treatment of hiccough in a much more able fashion. His insistence that the causative factor rather than the symptom should be treated, will meet with general approval. Too often a patient suffering from persistent hiccough is treated with an imposing array of mixtures and hypodermic injections when a flushing out of the bowel would put an end to the symptom by removal of the cause. Unfortunately, the cause is frequently undiscoverable or elusive of attack when discovered and in these instances the pharmacopœia and perhaps a few drops of chloroform on an anæsthetic mask are necessary resorts. Severe hiccough met with in the course of medical practice is not as remediable as Plato's physician would have us believe.

RENAL GLYCOSURIA.

The introduction of accurate and simplified methods of estimating the amount of glucose present in the blood in normal and diseased states has given a fillip to the study of diabetes. It is universally recognized that the important factor in the diagnosis of *diabetes mellitus* is the condition of hyperglycæmia rather than of glycosuria. Klemperer, of Berlin, declared a quarter of a century ago that a small proportion of patients whose urine persistently contains glucose, do not suffer from true diabetes, but from a condition to which he gave the name "renal diabetes." He was of opinion that the threshold of normal sugar excretion by the kidneys becomes lowered either as the result of renal disease or of some peculiar idiosyncrasy of those organs. The literature is marked here and there by reports of occasional cases of renal diabetes or renal glycosuria, as it is now more often termed. The reports have been few, probably because blood sugar estimations are still the exception rather than the rule. Briefly, the diagnosis of renal glycosuria rests on three features, *viz.*, glycosuria without hyperglycæmia, excretion of sugar with little, if any, relationship to food ingestion and absence of the usual clinical features of *diabetes mellitus*. Cases which satisfy these three requirements, obviously cannot be diagnosed as true diabetes. The diagnosis is not, however, as easy as it may seem. In the first place, patients suffering from *diabetes mellitus* not uncommonly fail to show hyperglycæmia at certain intervals. As is well known, the blood sugar level of many mild diabetics may fall to normal limits five or six hours after a meal. It is necessary to give test diets containing variable quantities of carbohydrate and to make the blood sugar estimations at accurate time intervals. Again, not a few patients who have apparently suffered from renal glycosuria and were not true diabetics, have had many of the symptoms and signs of diabetes, such as thirst, polyuria, loss of weight and furunculosis. Careful observations are, therefore, necessary before the diagnosis of renal glycosuria is justified. Until these observations are complete, it is wise in the interests of the patient to treat him as a diabetic. Dr. P. L. Marsh describes in the July issue of the *Archives of Internal Medicine* a case of the disease which fulfils all these requirements. The patient was a negress who was at first treated as a diabetic. She excreted enormous quantities of glucose daily in the urine, the average daily excretion over a period of three months amounting to 60 grammes. Yet at no time was any hyperglycæmia demonstrable. The ingestion of large amounts of glucose failed to cause a rise in the amount of blood sugar above the figure for a normal person on an equivalent diet. Even when the blood sugar was as low as 0.043%, glucose was excreted at the rate of over 5 grammes an hour. That the substance in the urine was glucose and not one of the other substances capable of reducing Fehling's solution, was proved by careful chemical, fermentative and polariscopic tests.

No hypothesis has yet been advanced to explain this curious condition. Glycosuria with hyperglycæmia is intelligible, but glycosuria of a high grade without hyperglycæmia is a mysterious phenomenon. Allen, who reported in 1919 that three out of forty soldiers treated for diabetes in a United States Army general hospital suffered from renal glycosuria, has stated that the sugar excretion is apparently determined in these cases by the potential carbo-hydrate of protein. No proof has been adduced for this contention and the majority of physicians will find it hard to believe that 60 grammes of glucose excreted daily over a long period can be formed from protein alone. Fat, so far as we know, is incapable of conversion into glucose.

The observer naturally looks to the kidneys for the solution of the problem. The term renal glycosuria tends to focus attention on these organs with little justification. There is no proof that the kidneys are the responsible party. In certain cases the patients have had signs of nephritis, if albuminuria and the presence of granular casts in the urine are taken as evidence of nephritis. Other patients have appeared healthy in every respect. The theory that the threshold of sugar excretion by the kidneys is lowered to such an extent that very little is thrown back into the circulation, also requires proof before it can be accepted. Whatever is the explanation of the condition, the responsibility lies on clinicians to differentiate carefully between true diabetic and so-called renal glycosuria. It is not improbable that many persons condemned to a life of dietetic rigour and abstemiousness, suffer in reality from a glycosuria which is apparently innocuous.

Deep regret has been occasioned by the death resulting from a motor car accident on September 23, 1921, of Dr. George Augustus Paul, of Macquarie Street, Sydney. Dr. Howard Bullock, who was also in the car, escaped with minor injuries.

Abstracts from Current Medical Literature.

MEDICINE.

(145) Thrombo-Angeitis Obliterans.

The treatment of the disease described by Buerger under the name of *thrombo-angeitis obliterans* is discussed by W. A. Steel (*Journ. Amer. Med. Assoc.*, February 12, 1921). The condition is characterized as an inflammatory disease of the blood vessels of unknown origin. All the coats of both arteries and veins are affected. The disease usually commences in the blood vessels of the legs, below the bifurcation of the popliteal artery, and spreads thence by continuity, or may appear independently in other vessels. A fatal termination may be brought about by affection of a renal or other visceral vessel. The incidence is chiefly amongst middle-aged males. The lesion is essentially an acute inflammation of the intima, with occlusive thrombosis. Organization and canalization of the clot, with absorption of the inflammatory material, follow and, finally, there is a periarteritis, which may cause the artery, *venæ comites* and accompanying nerves to become bound together. The process is probably of microbic origin. An attempt to establish a compensatory circulation is made by enlargement of anastomoses and by vascularization of the occluding thrombi. Symptoms are produced by the gradual shutting off of the arterial blood supply. Pain in the foot or calf while he is walking or standing is usually the first complaint of the patient. Pain is relieved on sitting down and by elevating the limb. The initial symptoms are usually ascribed to intermittent claudication. When the disease is developed, the affected foot becomes a purplish blue when dependent and is blanched when held in the horizontal position. As thrombosis developes, the posterior and anterior tibial vessels become occluded and non-pulsatile. Dry gangrene may appear in the great toe and spread up the leg. Treatment is directed towards increasing the capillary hyperæmia and encouraging the formation of the collateral circulation. Elevation of the limb and exposure to dry heat is advocated, as well as passive hyperæmia with Bier's suction cylinders. Recently the intravenous injection of Ringer's solution and 2% solutions of sodium citrate has been advocated, with the object of lessening the viscosity of the blood. It is claimed that these measures are of value in the relief of pain and tend to check the progress of an otherwise fatal disease.

(146) Bence-Jones Proteinuria.

Waltman Walters (*Journ. Amer. Med. Assoc.*, March 5, 1921) reports three cases exhibiting Bence-Jones proteinuria and reviews briefly the records of this condition in the literature. In 1847 Henry Bence-Jones reported before the Royal Society of London the finding of a peculiar form of protein in the urine in a case of *osteomalacia fragilis rubra*. The most characteristic feature of this protein was its behaviour with nitric acid. This reagent yielded a precipitate with the urine of the patient, which dissolved on heating and reappeared on cooling. At necropsy the ribs were cut with the greatest ease and the bodies of the vertebræ could be sliced with a knife. Microscopically the kidneys were normal. After 39 years a second case was recorded. Up to the year 1917, 205 instances of Bence-Jones proteinuria have been reported. In 80% of these cases the patients were found to have been suffering from the condition of multiple myelomata; in the remainder various morbid conditions have been recorded, including leukæmia, myxœdema, exophthalmic goître, carcinomatosis and hypertension. The proteinuria is therefore not essentially dependent on one disease, but is a manifestation of disease affecting endogenous metabolism. The characteristic reaction of Bence-Jones protein is its precipitation from acid urine at temperatures of from 55° C. to 60° C., its disappearance at boiling point, with the formation of a clear solution, and its re-appearance as the solution cools. The origin of this protein is still in doubt. In the author's opinion, the most tenable hypothesis is that it represents either normal, abnormal or aberrant stages of bone synthesis, the completion of which is hindered by indeterminate pathologic conditions. The writer records metabolic studies made in the cases of the three patients under his supervision at the Mayo Clinic and concludes that the quantity of Bence-Jones protein excreted is independent of the protein intake and that no constant relationship exists between the quantity of Bence-Jones protein excreted and the total urinary nitrogen excreted. Clinically a large quantity of albumin in otherwise normal urine in a patient with normal renal function and normal blood pressure and a marked secondary anæmia should suggest the possibility of Bence-Jones proteinuria, especially when bone lesions are present. Bence-Jones proteinuria is significant from the diagnostic and prognostic standpoint of multiple myelomata, since this is the underlying condition in 80% of cases, and it is usually followed by death within two years.

(147) Typhoid Spine.

Barclay W. Moffat (*Journ. Amer. Med. Assoc.*, March 5, 1921) discusses the pathological basis and clinical features of typhoid spine. This condition was first described by Gibney in 1885 and is a comparatively rare complication of typhoid fever. In an analysis of 108 cases it has been found that the lumbar region of the spinal column was affected in 59 instances, as against 39 in which other regions were involved. The pathological basis of the condition has been described as (1) simple periostitis, (2) osteitis with sub-periosteal abscess and (3) periostitis with osteitis. The affection had previously been regarded as a pure neurosis. Skiagraphic findings have recorded narrowing or obliteration of the intervertebral spaces. The time of onset of spinal symptoms varies from the third week of the disease to four years after its termination. Murphy explains the delayed onset of symptoms in certain cases by supposing the patient to be a carrier, a minor degree of trauma determining the origin and location of the pathological process. Complaint is usually made of pain at the site of the lesion, accentuated by twisting or jarring. The spinous and transverse processes of the vertebræ may be painful on pressure. Referred pains are often marked and severe. Pressure may be produced upon the spinal roots by exudation about the foramina. Treatment consists of fixation by a plaster jacket or a brace. A well-marked kyphosis may occur as a result of periostitis, with consequent softening of the ligaments and disorganization of the discs. This deformity is usually readily reduced and the parts retained in position by a plaster jacket.

(147) Hyperthyreoidism and Diabetes Mellitus.

The relation between hyperthyreoidism and *diabetes mellitus* is described by R. Fitz (*Archives of Internal Medicine*, March, 1921). The author describes the outstanding features of 39 hitherto unpublished cases of diabetes complicated by thyreoid disease. The author comes to the conclusion that the diabetes usually follows the thyreoid disturbance and tends to run parallel in severity with the thyreoid intoxication. Certain cases of toxic thyreoid disease and diabetes may improve to a considerable extent after the thyreoid symptoms have been checked.

(149) Sympathetic Pains.

Under the title of *algies sympathiques* T. Tinel discusses certain cases of pains in the limbs, trunk and face and describes six cases in which burning pains and sensations of cold, weight and fulness occurred in the hand, legs, face, penis and other parts without any physical signs of disease and with no obvious ætiological factor (*La Presse Médicale*, April 2, 1921). He compares these sensations in their nature and chronicity to the sensations in causalgia following injury to peripheral nerves and advances arguments to prove that irritation of sympathetic nerves is the cause of these symptoms. He considers that many pains, the cause of which cannot be determined clinically, are due in all probability to sympathetic irritation. He bases his arguments on the fact that in the cases described the sensations were of a kind, *e.g.*, feelings of tension, fulness, weight and burning heat. Objective signs were absent. The sensations were paroxysmal, had a tendency to become accentuated and to spread and frequently occurred after excitement and emotion.

NEUROLOGY.

(150) The Future of Ex-Service Patients in Mental Hospitals.

William Robinson (*Journal of Mental Science*, January, 1921) writes that,

since a change of legislation regarding the treatment of incipient mental disorder is contemplated, a change which is likely to increase the discontent already existing amongst the relatives of ex-service patients, it is well to emphasize the following points: Firstly, large numbers of ex-service patients have been sent to mental hospitals after prolonged treatment in military hospitals, solely because they were considered incurable. Secondly, the provision of small local mental hospitals for ex-service patients would not only involve extraordinary expenditure, but might lead to serious fatalities, since the forms of mental disorder from which they suffer are imperfectly understood by those who make the greatest outcry. Thirdly, it appears that the ex-service class presents the following differences from the ordinary male patients admitted to a mental hospital: (*i.*) The history of hereditary instability is more frequent. (*ii.*) A criminal history is more common. (*iii.*) The incidence of alcohol and syphilis as causative factors is unusually great. (*iv.*) Amentia is more frequent. (*v.*) The percentage of cases of general paralysis is much greater. (*vi.*) The recovery rate of direct admissions is unusually small. (*vii.*) The mental disorder, apparently attributable to injury, wounds and gas poisoning, has occurred amongst potential psychopaths. Finally, it would be impossible to arrive at any other conclusion than that the majority would have been in mental hospitals sooner or later had there been no war, while the minority would have formed the pre-war group of waifs and strays, inhabitants of the casual wards of workhouses and of civil prisons.

(151) Left-Handedness and Mirror-Writing Among Defective Children.

Hugh Gordon (*Brain*, Vol. XLIII., Part 4) has made a series of observations and experiments on left-handedness and mirror-writing in schools for mentally defective children in London and Middlesex. The percentage of left-handed children is much higher in schools for the mentally defective than in ordinary elementary schools and left-handedness is more frequently associated with defects of speech than is right-handedness. In the case of twins, when one is left-handed and the other right-handed, the left-handed twin is often backward, less developed, highly nervous or may even be an inmate of a school for the mentally defective, whereas the right-handed twin is normal. Further, among twins consisting of a boy and a girl, commonly (in one-third of cases) one is left-handed and the other right-handed. Among normal children the left-handed are frequently the more efficient and capable, whereas among the mentally defective it is exactly the reverse. Spontaneous change from left-handedness to right-handedness in writing among the mentally defective is often found to be associated with progress in school work and in intelligence. As regards mirror-writing, the percentage of mirror-writers is much higher in schools for the mentally and physically defective than in ordinary elementary schools. The majority of mirror-writers are children who are reported to have written with the right as well as with the left hand; but this is not invariably the case, as many mirror-writers, although left-handed in a number of things, are said never to have written with the left hand. Other mirror-writers who have suffered from right hemiplegia from an early age have obviously never written with the right hand. Many left-handed children write mirror fashion with the left hand when they first begin to write and persist in doing so for some time. A few right-handed children also write mirror fashion with the right hand when they first begin to write. In no case does a left-handed writer write mirror fashion on changing from left to right. In the explanation of mirror-writing the old suggestion is repeated that in some cases it is due to the influence of a motor memory-image, in others to an optical memory-image of the letters, while in explanation of the frequency of left-handedness among mentally-defective children it is suggested that something has occurred to interfere with the proper functioning of the dominant left hemisphere.

(152) Hydrocephalus Complicating Cerebro-Spinal Fever.

Cecil Worster-Drought (*Journ. of Neurol. and Psychopath.*, Vol. I., No. 4) states that in cerebro-spinal fever two forms of hydrocephalus, generalized and internal, may arise. In the generalized form there is an increase of cerebro-spinal fluid throughout the sub-arachnoid space, both in the ventricles and externally, without obstruction of the foramina of Majendie or of Luschka. The symptoms are headache, lethargy, numbness and dilated pupils, which are practically those of internal hydrocephalus, but not in as severe a form. Lumbar puncture yields a large quantity of fluid and brings relief of symptoms, but may need repetition every twelve hours. Sometimes, unfortunately, a blockage occurs, either at the *foramen magnum* or in the spinal canal above the lumbar region and the result is death. In other cases, after apparent recovery from meningitis, the hydrocephalus persists and is explained by the formation of organized exudate and adhesions diminishing the capacity of the subarachnoid space—in effect, a chronic meningitis. Internal hydrocephalus consists of an accumulation of fluid in excess within the ventricular system, usually due to occlusion of the foramen of Majendie or the foramina of Luschka. In the treatment of internal hydrocephalus, should lumbar puncture give a "dry tap," as it probably will, dorsal or even cervical puncture may be tried and, if successful, the usual serum injections may then be made. If the attempt at spinal puncture fails, an attempt may be made to tap the lateral ventricles *viâ* the orbit and sphenoidal fissure (after the method of Bériel and Cazamian) or through the anterior fontanelle in the case of an infant or by trephining or simple cranio-puncture at Keen's point. It is not claimed that ventricular puncture in the internal hydrocephalus of adults gives striking results. Nevertheless, excepting in very rare cases, the operation offers the only hope of success.

(153) Alcohol Injections in Trigeminal Neuralgia.

Harvey Cushing (*Journ. Amer. Med. Assoc.*, August 14, 1920) has investigated the subject of alcohol injections in trigeminal neuralgia. After pointing out certain accidents which have occurred in the hands of the less expert, such as the production of fibrosis of the pterygoid muscle, with subsequent lock-jaw, paralysis of eye muscles, sloughing of nasal bones and accidental injection of alcohol into the middle ear, he comes to these conclusions: (1) Injections of alcohol at the foramina of exit of the fifth nerve have completely superseded peripheral neurectomies. (2) In neuralgia confined to one of the two lower divisions, alcohol injections are unquestionably the treatment of choice. (3) When the neuralgia has spread beyond its original area and come to involve that supplied by an adjacent division, a trigeminal neurectomy must be contemplated. (4) Injections are sometimes useful in doubtful cases in determining whether the syndrome is a true neuralgia of the *tic douloureux* type, or one of the peculiar and rare pseudo-neuralgias not amenable to relief either by injections or neurectomies. (5) Even the extra-cranial injections are not entirely free from risk and in no case should they be purposely pushed to the point of attempting an injection of the Gasserian ganglion itself, because this is surrounded by an arachnoid space continuous with the posterior fossa. (6) With such perfect and permanent results as may be secured by a trigeminal sensory-root avulsion, the prolonged and repeated use of injections in refractory cases which involve more than one division should be deplored.

(154) Familial Tabes Dorsalis.

J. le Fleming Burrow (*Journ. of Neurol. and Psychopath.*, November, 1920) discusses the subject of familial *tabes dorsalis*. He describes a family of eight, born of healthy parents. Two children died in infancy, six have survived. Four of these, two males and two females, acquired undoubted syphilis from various sources with the result that *tabes dorsalis* developed in all. A fifth member of the family acquired gonorrhœa (syphilitic infection being doubtful) and probably has early *tabes dorsalis*. A sixth has escaped venereal infection and remains healthy. In the light of these facts it is suggested that *tabes dorsalis* is not produced by a special strain of spirochæte, but by a common spirochæte acting upon tissues specially sensitized either by natural family peculiarity or by certain methods of treatment. The discovery of the spirochæte in the tissues (brain and cord) of general paralytics and tabetics should stimulate further research into the other factors, still unknown, which are concerned in the production of these diseases.

Medical Societies.

MELBOURNE PÆDIATRIC SOCIETY.

A meeting of the Melbourne Pædiatric Society was held at the Children's Hospital, Melbourne, on Wednesday, May 11, 1921, the President, Dr. H. Hume Turnbull, in the chair.

Dr. A. E. Rowden White presented for discussion the case of a boy, aged 10½ years, with polyarthritis. The clinical history was outlined by Dr. J. W. Grieve. The boy's illness dated back fifteen months and had commenced with pain and limitation of movement in the right hip. The condition had subsequently progressed to a stage in which all the joints of the body appeared to be affected, with the exception of the temporo-maxillary articulations. The right hip was adducted, inverted and flexed at an angle of 30°. It allowed a very limited range of movement (5% to 10%). The left hip was similarly flexed at an angle of 30° and could not be moved more than 15°. Of the other joints, the wrists and fingers were noted to be most affected and movement was accompanied by distinct grating. The child had been anæsthetized and it had then been found that the right hip exhibited a good range of movement and, although there was definite crepitus in the joint, the limb could be readily manipulated into position. Treatment by the Hamilton Russell method of extension applied to both lower limbs had been instituted and continued for a period of six weeks. The boy had been encouraged to flex the hip joints and massage combined with active and passive movements, had been employed. This routine had been followed by treatment of the patient for a week in bed without extension and at the end of that period improvement to such a degree that the right and left hip joints could be flexed at angles of 70° and 40° respectively, had been apparent. The boy had then been allowed to use crutches for one month. His present condition was exemplified by the fact that the hip-joints were flexed at an angle 15° and allowed movement through a range of 5° to 10° only. The illness throughout had been characterized by pallor, sweats and muscular wasting. The affected joints had exhibited peri-articular thickening. There was no cervical or general adenitis and no enlargement of the spleen had been detected.

Thorough clinical and pathological examinations had yielded no definite results. Two carious teeth had been removed. The tonsils were small and not obviously diseased and there was no history of sore throats. No organisms had been cultivated from the blood which had also failed to react to the Wassermann test. The von Pirquet cutaneous test with both human and bovine tuberculins had shown no reaction, nor had subcutaneous diagnostic injections of old tuberculin. The family history was good. No suggestive data had been obtained by radiographic examination of the chest and abdomen or by a differential count of the leucocytes.

At the conclusion of his remarks, Dr. Grieve exhibited radiograms of the affected joints.

Dr. White's second patient was a boy, aged 10 years, in whom the first indications of ill-health had appeared at the age of 11 months in the form of pain and swelling of the right ankle joint. This condition had come on suddenly and had only lasted three days. When the boy had reached the age of 16 months a similar painful swelling had occurred in the right knee joint and had likewise subsided within a few days. Evidence of hæmophilia had been first apparent at the age of 17 months when the infant had bled for several days from a pin prick of the finger. As a small child the patient at various times had suffered from subcutaneous hæmorrhages and epistaxis. In 1918 severe melæna had occurred and during this attack a large hæmatoma had formed in the leg. Attacks of pain and swelling in the joints had taken place at intervals since the first onset at eleven months and the boy had first come under observation at the Children's Hospital on February 28, 1921. According to the history then obtained the knee-joints had been flexed and enlarged for three years. On examination the left knee joint was found to be swollen, painful and fluctuant and flexed at an angle of 100°, with the limited range of movement of 10°. The right knee was flexed to 145° and the boy was unable to reduce this angle by extensor movement. Considerable muscular wasting was noted above and below the joints and the ankles, elbows and tarso-metatarsal articulations exhibited some thickening and creaking. The teeth on inspection were found to be carious, while the tonsils were hypertrophied, but not obviously septic. Inquiries into the family history had revealed that two other children were affected with joint trouble, which had been attributed to hæmophilia. A third child, also the subject of joint affection, had bled to death at the age of 3½ years from a cut received accidentally. The mother's sister had lost a child from hæmorrhage at birth.

Under treatment the boy's condition had improved considerably, although complete extension of the knees had not been attained.

Dr. White exhibited radiograms of the affected joints and intimated that the blood coagulation time determined by the capillary tube method, was 26 minutes.

Dr. H. Hume Turnbull presented another example of polyarthritis in a girl of 8 years. The child's illness had extended over a period of six months and had commenced with pain, swelling and stiffness of the ankle joints. Involvement of the knee and wrist joints had soon followed and two months after the onset, although no swelling of the joint had been noted, the right hip became spontaneously dislocated. The illness had been associated with fever at first, but later there had been no fever. At the time of her admission to hospital the girl was emaciated and of sallow colour; the ankle, knee and wrist joints were swollen, painful on movement and exhibited much peri-articular swelling. Muscular wasting was extreme; no splenic or glandular enlargement could be detected. Several septic and carious teeth were found and removed, but no evidence of infection in the tonsils was apparent.

In spite of the appearance of effusion in the affected joints, very little fluid had been obtained by aspiration and attempts to cultivate an organism from such fluid by incubation in ascitic broth had yielded no result. The Hamilton Russell method of extension was applied to both lower limbs, with great comfort to the patient and improvement in the joints, with the exception of the badly affected right hip joint. The von Pirquet test with human and bovine tuberculins showed no reaction on two occasions and the blood serum failed to react to the Wassermann test.

Six weeks after her admission to hospital the child became febrile and five days later jaundice appeared, accompanied by a gradual enlargement of the liver. A blood culture at this stage proved sterile after incubation of the blood for seven days in ascitic broth. The urine which at the time of the girl's admission was free of pus and bacteria, was found after the onset of the fever and jaundice to contain bile. There was also a mild degree of pyo-bacilluria. A coliform bacillus which showed somewhat anomalous sugar reactions, was isolated and found to be agglutinable by the patient's serum in dilutions as low as 1 in 20; but, as it failed to be agglutinated with a dilution of 1 in 30, Dr. Webster had reported that the agglutination titre was too low to be of significance. The chief fact revealed by an examination of the blood was the existence of a leucopenia—the total leucocytes numbered 4,500 in each cubic millimetre.

The child's past history showed that she had had an attack of scarlet fever at the age of two years. She had never been subject to sore throats, but when six years of age, two years before the onset of the present illness, she had suffered from a febrile attack in which the joints had become painful and swollen. That illness had lasted two weeks and the joint recovery had been complete. The family history was not suggestive. No tuberculosis could be traced among the child's immediate relatives.

Dr. H. Douglas Stephens introduced for discussion the case of a boy of four years, who was also suffering from polyarthritis.

For the previous two months the child had been unable to walk and had suffered an exacerbation of a long-standing joint affection involving chiefly the ankles, knees, wrists and elbows. The first attack of joint disease had commenced insidiously when the boy had reached the age of fifteen months. The wrists and ankles had become swollen and painful. At the same time, the child's neck had become stiff and he resented movement of it. After six months' treatment in a country hospital he had been discharged, considerably improved and able to walk. Twelve months

prior to the present illness the child had contracted measles, which was followed by a relapse in the multiple joint affection. Again he had improved and remained in comparatively good health up to the time of the present attack. He came of a healthy family, among whom no tuberculosis could be traced and as a baby had been breast-fed for twelve months. In general appearance the boy was pale and slight, with a fair, lemon-tinted skin. He was unable to stand or walk. Slight scoliosis was apparent and there was diminished prominence of the 5th, 6th and 7th thoracic spines.

Dr. Stephens drew attention to soft, discrete, but considerably enlarged glands in the axillæ and to a similar affection of the epitrochlear glands on both sides. In the cervical and inguinal regions no enlargement of the lymphatic glands could be detected. No glands could be felt in the abdomen, the spleen was not palpable and there was no increase in the liver dulness. The report on the radioscopic examination of the chest was to the effect that there was some faint general haziness, but the gland shadows were within normal limits.

Dr. Stephens exhibited radiograms of the ankle, knee, elbow and wrist joints and an antero-posterior view of the thoracic vertebræ. He stated that examination of the blood revealed a definite secondary anæmia, with a leucocytosis of 18,000 in each cubic millimetre, of polynuclear (68%) character. The blood serum had failed to react to the Wassermann test, the von Pirquet test to both human and bovine tuberculins had failed to demonstrate a reaction and the injection of 0.001 c.cm. of old tuberculin had been unattended by any local focal or general reaction. An anæsthetic had been administered and the affected joints explored and one of the enlarged glands excised. It had been found that when the abdominal muscles were relaxed under anæsthesia, various mesenteric glands were palpable, but no fluid could be aspirated from the joints.

Dr. Stephens added that he had received a report by Dr. Webster from the pathological laboratory. This report stated that the blood culture after six days' incubation in ascitic broth was sterile. Dr. Webster had also carefully examined the excised glands. An attempt to cultivate an organism from the glands had been fruitless after six days. Histological section of a gland showed a sub-acute adenitis with endothelial proliferation and much vascularization, which should be interpreted histologically as non-tuberculous. None of the essential features of tuberculosis were present and the process generally was too acute and too vascular for tuberculosis. There did not appear to be the necessary evidence for a diagnosis of syphilis. Sections of a gland had been examined for organisms without result. An antiformin digest of gland substance had been examined for tubercle bacilli. The result was negative after prolonged search. An animal inoculation test was in progress. A urethral smear showed epithelial cells; no pus, numerous Gram-negative coliform bacilli and urethral spirochætes; no gonococci had been observed.

Dr. Stephens said that the question of diagnosis should include the possibility of syphilitic, tuberculous or other infective arthritis, including the so-called Still's disease. Efforts to determine the nature of the infecting organism were handicapped by the fact that no fluid could be obtained from the joints.

Dr. A. Jeffreys Wood expressed his great interest in the child shown by Dr. Stephens. He regarded the condition as an example of Still's disease, which was the most common form of polyarthritis in children. He drew attention to the fact that the pathological changes in the joints were limited to the synovial membrane and peri-articular tissues and were not attended by effusion of fluid. The muscular wasting and the bony changes of rheumatoid arthritis were also lacking. In the case presented, members saw a child in the first dentition who had been the subject of polyarthritis since the age of 15 months. The boy was now four years old and exhibited fever, swelling of the larger joints rather than the smaller and enlargement of the axillary and inguinal glands. In his original paper Dr. Still had pointed out that the spleen became enlarged during exacerbations of pyrexia, but that in the remissions of fever both splenic and glandular enlargement might recede.

In reference to the prognosis, Dr. Wood quoted the opinion of Sir Archibald Garrod, who maintained that the outlook was by no means hopeless and cited an instance within his own experience in which the child got well. Originally Still had taken a very gloomy view of the prognosis, but had recorded improvement after measles and scarlet fever.

Dr. Wood referred to Dr. Stephen's statement concerning the examination of a urethral smear. He had never seen multiple arthritis due to the gonococcus in children, but he recollected a report on 26 such cases by Holt and in two of these the arthritis had supervened on *ophthalmia neonatorum*. Regarding the possibility of tuberculosis, he had in the course of a long experience met with a number of multiple strumous joints, but, as a rule, tuberculous arthritis was confined to a single joint.

In the child shown by Dr. Turnbull. he questioned the advisability of attempting to reduce the dislocation of the hip, since the capsule of the joint was probably much disorganized.

In reply to a question by Dr. R. L. Forsyth as to the advisability of splinting in the treatment of the condition under discussion. Dr. Wood said that he had frequently employed extension and occasionally during exacerbations of arthritis he had used splints, but in view of the lengthy period of treatment he restricted the use of splints to the temporary measure he had indicated.

Dr. W. D. Upjohn said that he had been impressed with the resemblance of the cases exhibited to those of post-dysenteric polyarthritis which had been observed in Egypt during the war. In many of the latter repeated attempts to demonstrate infection with the *B. shiga* or *B. flexner* had failed, yet Dr. C. J. Martin, convinced that there must be some method of demonstrating persisting dysenteric infection, eventually succeeded in recovering one or other type of *B. dysenteriæ* after repeated saline purgation. Reasoning from analogy, which admittedly was apt to the fallacious, it appeared that the ætiological factor in some, at least, of the cases of multiple arthritis in children might be found in a bowel infection. The clinical resemblance to post-dysenteric arthritis was striking and in the child shown by Dr. Turnbull, the leucopenia was suggestive of infection by an intestinal organism. Such an infection would be most likely to be discovered by repeated saline purgation and bacteriological examination of the stools.

With reference to the example shown of hæmophilic arthritis, Dr. Upjohn observed that the joint affection might be the only manifestation of the hæmophilic tendency, and in illustration outlined the history of a young soldier who had come under his care with an old-standing affection of one elbow joint and a recent hæmarthrosis of the knee joint. This patient did not bleed unduly from wounds and gave no history of bleeding in childhood, but the blood coagulation time was very much delayed and transfusion of blood was successful in arresting the hæmorrhage into the joint. Moreover, a hæmophilic patient might not always suffer from his hæmophilia and instances had been recorded in which at one time a trivial scratch had led to prolonged bleeding, while in the same patient, at another period, a much more serious cut was unattended by any untoward hæmorhage.

Dr. Stewart Ferguson, in commenting upon the statement of Dr. Wood that he had never seen rheumatoid arthritis in children, said that he understood Dr. Wood to refer to arthritis accompanied by much wasting and by bony deformity. He personally would like to take a wider view and consider the acute disease in children which closely resembled rheumatic fever and all intermediate forms up to the affliction of the elderly patient with deformed and eburnated joints, as essentially the same disease, modified by age and resisting power. In the young the principal changes were in the synovial membrane and peri-capsular tissues. As age advanced, bony changes supervened. He was not sure that Still's disease was a separate entity and saw no reason why a certain amount of lymphatic gland enlargement should not be expected in the more acute types of rheumatoid arthritis. Those instances of acute polyarthritis which did not respond to salicylate medication, could only be regarded as rheumatoid arthritis and the clinical resemblance between the latter condition and rheumatic fever was often very close.

Dr. H. Douglas Stephens said that the remarks of Dr. Upjohn with reference to polyarthritis following dysentery recalled to him an article by Manson Barr and Martin, in which post-dysenteric arthritis was described. If he remem-

bered correctly, the joint fluids in such cases seldom showed any organisms, a fact which Martin had demonstrated; the cause of this was attributed by him to the high antibody content of the joint fluids. He had seen a number of children in whom polyarthritis had developed before the second dentition, but they were very few when considered in relation to the large number of dysenteric infections in infancy. The little boy exhibited had shown no enteric or bronchitic trouble whatever in infancy. In the child he had presented he had given full consideration to the possibility of a multiple tuberculous affection of the joints—the so-called Poucet's disease—the clinical descriptions of which closely resembled those of Still's disease. However, the family history was clear in this respect and the various clinical and pathological investigations directed towards the detection of tuberculosis, had been negative in result. The clinical picture was not that of a definitely tuberculous joint. Members would remember that at a former meeting of the Society he had shown an example of multiple joint affection which seemed to be not improbably a tuberculous synovitis, and the subsequent course has tended to confirm this diagnosis. He pointed out that syphilitic polyarthritis was characterized by a very insidious onset, usually after the child had passed the fifth year. He recollected two instances of multiple gonococcal arthritis in children, one in a baby with *ophthalmia neonatorum* and the other in a boy in whom affection of both hip joints had supervened on gonorrhœal urethritis.

In regard to the question of splinting in the cases under discussion, he was of opinion that continuous splinting was seldom advisable and he favoured the judicious use of massage and light passive movement. He had also found hot air and hot sand baths beneficial.

Dr. Lionel Hood presented a boy, aged 3½ years, the subject of spastic paraplegia. Birth had been premature, *i.e.*, after a gestation of seven months, and was said to have been difficult, although delivery had been effected without instruments. The infant did not sit up until he was 16 months of age and he had never walked without support. Both lower limbs were spastic and exhibited exaggerated reflexes, but sensation was apparently unimpaired.

Dr. Hood drew attention to the prominent head, arched palate and spastic condition of the lower limbs and mentioned that the child's mentality had improved considerably under administration of thyreoid extract. Whereas he was formerly unclean in his habits and dribbled a great deal, both these features were now not in evidence. The Wassermann reaction applied to the blood serum had yielded no response and the mother's obstetric history was good. Division of the adductor tendons had been carried out after which the child had been placed in a double Thomas's splint with the lower limbs in a position of abduction and treatment had been continued with massage and faradism.

Dr. H. Douglas Stephens said that, although he did not intend his remarks as directly applicable to the child just shown, since he had not had an opportunity of completely examining him, he was pessimistic as to the results to be obtained by division of the adductor tendons, massage and electricity in the treatment of severe grades of spastic paraplegia. In his opinion electricity was distinctly contraindicated. Two other suggestions might be considered; firstly, division of the nerves supplying particular muscle groups, *e.g.*, the obturator nerve, in the case of the adductor muscles and, secondly, division of the posterior nerve roots (Förster's operation). In milder cases, with the affection limited to certain muscle groups, such as the calf muscles, individual tenotomies or tendon lengthening were useful, but he did not favour widespread tenotomy.

Dr. F. Kingsley Norris discussed the possibility of attaining considerable improvement in the mental condition of these children by appropriate measures.

Dr. Hood pointed out that in his patient tenotomy had been performed in order that the limbs might be put into correct position for massage. It was a preliminary measure only and not intended as curative. For the present, at least, he was disposed to persevere in the more conservative methods of treatment, as he was not impressed with the results following nerve operations.

The meeting terminated with the exhibition of a case of generalized epiphyseal enlargement and *genu valgum* by Dr. Stephens. He discussed rickets, syphilis and achondroplasia which he considered were possible underlying factors.

THE WAR MEMORIAL FUND IN VICTORIA.

We have been asked to publish the following names as subscribers to the War Memorial Fund of the Victorian Branch of the British Medical Association: Dougan Bird, H. S. Bourke, E. H. Embley, Henry Laurie, H. W. Lording, Vera Scantlebury, R. H. Strong, C. S. Sutton, F. L. Trinca.

Francis Victor McAdam, Esq., M.B., Ch.M., 1921 (Univ. Sydney), of 29 Alt Street, Ashfield, has been nominated for election as a member of the New South Wales Branch of the British Medical Association.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A meeting of the Senate of the University of Sydney was held on September 5, 1921. The following degrees were conferred: Master of Surgery (Ch.M.) upon Messrs. I. M. Barrow, B.A., M.B.; J. Bogle, B.A., M.B.; E. F. Fisher, B.A., M.B. (West Wyalong); A. J. Gibson, M.B.; F. Short, B.A., M.B. (Parkes); L. G. Tait, M.B., *in absentia*

The following appointments were made:

Mr. A. H. Martin, M.A., Ph.D. (Col.), as Lecturer in Psychology, *vice* Mr. G. Phillips, M.A., D.Sc., resigned.

Dr. E. S. Smalpage, as Honorary Demonstrator in Anatomy.

The University received an invitation to appoint delegates to the celebration of the seventh centenary of the faculty of medicine of Montepellier to be held on November 5, 1921. It was decided to send a congratulatory address, and to appoint Professor J. T. Wilson, Dr. G. H. Abbott and Professor Sir Almroth Wright, K.B.E., C.B., M.D., F.R.S., as delegates to represent the University

Cancer Research Fund, formed chiefly by the bequest of the late Mr. J. F. Archibald. The following Committee was appointed to make recommendations in regard to the Fund: The Chancellor, the Vice-Chancellor, the Warden and Registrar, Professors Mills, Welsh, Sands, Pollock, Drs. Purser and Blackburn and Sir Herbert Maitland.

A letter was received from the Perpetual Trustee Company, Limited, the Executor of the will of Mrs. M. A. Dalley, of Ashfield, who died on August 16 last, reporting a number of bequests amounting to £5,000 to the University of Sydney as follows:

A sum of £2,000 for the establishment of a bursary to be called "The George and Margaret Shirbin Bursary" tenable for such period and in such terms and conditions as the Senate may from time to time determine.

The will then directs:

> That only a soldier who served abroad in the Australian Imperial Forces in the great war, or a child or other descendant of such soldier, shall be eligible for the said bursary and that the competition therefor shall be limited to candidates whose financial circumstances are such that without the bursary they would be unable to bear the cost of an university education and I direct that so long as any such soldier or child shall be eligible the bursary shall be awarded to such soldier or child in preference to any other descendant and that other things being equal the bursary shall be awarded to the child or descendant of a soldier who lost his life on active service in the war in preference to any other candidate.

Two several sums of £1.000 each for the foundation of two bursaries for the benefit of a male student and to be called "The John George Dalley Bursary"; the other to be tenable in like manner for the benefit of a female student and to be called "The Mary Catherine Dalley Bursary."

The sum of £1,000 for the foundation of a prize in the Faculty of Law in memory of the Testatrix's late son, to be called "The John George Dalley Prize" and to be awarded annually for proficiency in such branch or branches of law and on such terms and conditions as the Senate of the University shall from time to time determine.

Medico-Legal.

DEATH UNDER ANÆSTHESIA.

At the Adelaide Hospital on July 21, 1921, a young man, Cecil Charles Webb, died of suffocation while under the influence of an anæsthetic. An inquest was subsequently held by the City Coroner, Dr. Ramsay Smith, in the Industrial Court Room at Adelaide. Mr. Paris Nesbit, K.C., appeared on behalf of Mrs. Sarah Duell, the mother of the deceased. The evidence of Alfred Henry Bellman, a cousin of the dead man, and of Charles Trevor Turner, Medical Superintendent of the Adelaide Hospital, showed that Webb, who was 21 years of age and an unmarried labourer, had slipped while ascending a hill with an axe in hand for the purpose of cutting trees. The axe had fallen on his left hand and caused a wound about 3.7 cm. long. He was taken to the Adelaide Hospital, where the casualty surgeon, Dr. Walter Edward Steven, administered an anæsthetic with the assistance of a fifth-year medical student and a nurse as a preliminary to sewing the wound. The patient apparently vomited during the administration and inhaled the contents of his stomach into the upper respiratory passages. He at once collapsed and stopped breathing. Dr. C. T. Turner, the Medical Superintendent, was hastily summoned and, on seeing the patient, came to the conclusion that he was dead. Artificial respiration was attempted for a short time without success and Dr. Turner then made an incision into the epigastrium and massaged the man's heart. Meanwhile a third resident medical officer, Dr. Percival Francis Leitch Hussey, had reached the casualty room. Under Dr. Turner's instructions Dr. Hussey performed a tracheotomy, inserted a rubber catheter into the trachea and inflated the lungs with air about 20 times, expiration of the air being artificially performed by pressure on the chest. These expedients were unavailing.

Dr. Turner explained that there were two Hospital rules relating to the performance of operations by resident medical officers. One was that the resident medical officer was permitted to assist in the administration of anæsthetics under the supervision of the Superintendent. The second rule was that he could perform minor operations under the supervision of an honorary medical officer or of the Medical Superintendent. These two rules were not observed on this occasion.

Mr. Nesbit then addressed the Coroner. He said: "I ask your Honour to commit both of these men for manslaughter. If you don't, I will." He did not think they had killed Webb intentionally, but by unskilfulness and ignorance. The proceedings were then interrupted by an incident which has the semblance of a travesty on the seriousness and dignity of the Court. Towards 1 o'clock p.m. Mr. Nesbit stated that he was hungry. He asked permission to bring his lunch into the Court. He returned in about five minutes, knocked loudly on the Court door and entered with a bottle of beer in one hand and a beef roll in the other. The Coroner made no comment.

The Coroner announced his verdict on July 28, 1921. It was that Webb's death was due to suffocation caused by vomiting while under an anæsthetic. At the same time he criticized the management of the Adelaide Hospital, particularly with reference to the casualty surgeon's ignorance of the rules.

On the following day, as a result of an information laid by Mrs. Duell, Drs. Turner, Steven and Hussey were charged in the Adelaide Police Court before Mr. T. Hewitson, S.M., and two justices of the peace with having on July 21, 1921, "killed and slain Cecil Charles Webb." As in the Coroner's Court, a strange exhibition was offered by Mr. Paris Nesbit. He entered into a wordy combat with Mr. E. E. Cleland, K.C., who was senior counsel for the accused. This conflict was continued on August 8, to which date the case had been adjourned. Mr. Nesbit became engaged in an acrimonious debate with Mr. Cleland and greeted a remark by the magistrate with the reminder: "I have a status in the law vastly superior to your Honour." Mr. Nesbit announced that the prosecution had decided "to take Turner as King's evidence." He asked for an adjournment in order to obtain the King's pardon.

Mr. Cleland stated that no pardon had been asked by Dr. Turner and that he had done nothing which required a pardon.

Sir Joseph Verco, retired medical practitioner, examined by Mr. Nesbit, stated that he might have performed an operation like that attempted on Webb without anæsthetic, if the patient had permitted him. He did not think it would have been right to administer an anæsthetic without the patient's consent. A local anæsthetic might have been sufficient, but the wound mentioned was rather large for local anæsthesia. He might quite possibly have preferred a general anæsthetic.

The examination of Sir Joseph Verco was interrupted by more cross-firing between counsel and the magistrate adjourned the case to August 2.

At the following hearing, before any evidence was taken, the prosecuting counsel exchanged some lively remarks with the stipendary magistrate, who refused to go on with the case, which he adjourned to a date to be fixed.

The hearing of the case was resumed on September 5, 1921. Counsel for the accused appeared, but there was no appearance of the prosecuting counsel. The magistrate intimated that he had received a letter from Mr. Nesbit in which the latter stated that he did not propose to proceed with the information. The magistrate then dismissed the informations.

Mr. A. S. McLachlan, who appeared for Dr. Steven, protested that the defence had no opportunity of refuting the remarks of the prosecuting counsel in his opening address or of putting the true facts before the Court. The magistrate replied that other avenues of redress might be open.

Thus came to an unsatisfactory ending a case in which the elements of tragedy were blended with those of a grotesque and unbecoming comedy. The quaint antics of an unconventional counsel were made to turn around an investigation into the loss of a young returned soldier's life and a serious criminal charge against three medical practitioners. Drs. Turner and Hussey were subjected equally with Dr. Steven to the indignity and painful necessity of standing trial in a court of criminal jurisdiction. The unexpected withdrawal of the information after charges had been made by the prosecuting counsel has left the accused in the unenviable position of subjection to gross publicity and worry with no obvious means of immediate redress.

It should be remembered that all three men have been registered as medical practitioners and are thus recognized by law as competent to administer an anæsthetic. The rules of the Adelaide Hospital that an anæsthetic may be administered only under the supervision of the Medical Superintendent, was on this occasion ignored, but we have reason to believe that it has not been the practice to apply it. The rule is a bad one. It removes the responsibility from the shoulders of one who is competent legally and by reason of his training to administer an anæsthetic and throws it on the shoulders of another whose duties are too many and too important to allow him to supervise all the anæsthetic activities of a large hospital.

The most which can be said about one or all of the three practitioners concerned is that an error of judgement was made. That error is highly regrettable, but it is intolerable that three medical practitioners, against whom no charge of incompetence, much less of manslaughter, could be proved, should be subjected to the attacks of an overbearing and eccentric barrister.

Naval and Military.

APPOINTMENTS.

The following appointments, etc., have been notified in the *Commonwealth of Australia Gazette*, Nos. 72 and 74, of September 15 and September 22, 1921:

Australian Military Force.

First Military District.

Australian Army Medical Corps—

Colonel A. Sutton, C.B., C.M.G., V.D., is transferred to the Reserve of Officers, 1st August, 1921.

Reserve of Officers—

The following officers are transferred to the Reserve of Officers, Second Military District, 1st August, 1921: Major (Honorary Lieutenant-Colonel), J. R. McN. Beith, D.S.O., and Honorary Captains F.

Pain, P. S. Parkinson, J. Coen, A. J. Opie, J. G. Lentaigne, R. Belli, W. R. Page, H. T. S. Bell and C. H. Clatworthy.

Honorary Captain H. T. Bourne is transferred to the Reserve of Officers, 3rd Military District, 18th August, 1921.

Major (Honorary Lieutenant-Colonel) R. Macdonald, V.D., having held the substantive rank of Lieutenant-Colonel in the Australian Imperial Force, to be granted the rank of Lieutenant-Colonel, 1st January, 1921.

The undermentioned officers are placed on the Retired List, with the rank stated, and with permission to wear the prescribed uniform, 23rd September, 1921: With Honorary Rank of Colonel—R. Macdonald, V.D.; with Honorary Rank of Lieutenant-Colonel—Major W. G. Cahill, C.M.G., V.D.; with Rank of Major—Honorary Majors J. L. Gibson and E. S. Jackson; with Honorary Rank of Major—Captain S. Bradshaw; with Rank of Captain—Honorary Captain T. J. Henry.

The undermentioned officers are retired under the provisions of Australian Military Regulation 158 (*h*), 15th September, 1921: Honorary Major A. Stewart; Honorary Captains J. Cook, R. Belli, S. Stuart, A. E. Shaw.

Retired List—

Captain T. J. Henry is transferred to the Retired List, 2nd Military District, 24th September, 1921.

Second Military District.

To be Captains—

Honorary Captain Samuel Boake, Australian Army Medical Corps Reserve, 1st January, 1921.

Honorary Captain Harold Picton Clark, Australian Army Medical Corps Reserve, 1st January, 1921.

Australian Army Medical Corps—

Colonel W. l'E. Eames, C.B., V.D., is placed on the Retired List with the Honorary Rank of Major-General and with permission to wear the prescribed uniform, 1st August, 1921.

Captain C. J. Wiley is transferred to the Reserve of Officers and to be Major, 15th September, 1921.

Captain R. J. N. Whiteman is transferred to the Reserve of Officers and to be Major, 1st January, 1920. (This cancels the notification respecting this officer which appeared in Executive Minute, No. 105/1920, promulgated in *Commonwealth of Australia Gazette*, No. 25, of 4th March, 1920.)

Captain A. L. Kerr is transferred to the Reserve of Officers, 15th September, 1921.

Reserve of Officers—

The following officers are transferred from the Reserve of Officers, 1st Military District, 1st August, 1921: Major (Honorary Lieutenant-Colonel) J. R. McN. Beith, D.S.O., and Honorary Captains F. Pain, P. S. Parkinson, J. Coen, A. J. Opie, J. G. Lentaigne, R. Belli, W. R. Page, H. T. S. Bell and C. H. Clatworthy.

The temporary rank of Major granted to Honorary Captain W. R. Tomlinson is terminated, 15th April, 1921.

Retired List—

Captain T. J. Henry is transferred from the Retired List, 1st Military District, 24th September, 1921.

Third Military District.

To be Lieutenant-Colonel—

Charles Edgar Dennis, 1st December, 1920.

To be Majors—

Honorary Captain William Bernard Ryan, Australian Army Medical Corps Reserve, 1st January, 1921.

Henry Hume David Turnbull, 1st January, 1921.

To be Captains—

Honorary Captain Hibbert Alan Stephen Newton, Australian Army Medical Corps Reserve, 1st January, 1921.

Honorary Captain Stanley Cochrane, Australian Army Medical Corps Reserve, 1st January, 1921.

Australian Army Medical Corps—

The temporary rank of Major granted to Captain B. Foster is terminated, 30th June, 1921.

Captain B. Foster is transferred to the Reserve of Officers, 1st August, 1921.

Reserve of Officers—

Honorary Captain H. T. Bourne is transferred from the Reserve of Officers, 1st Military District, 18th August, 1921.

Honorary Captains J. F. Patrick and J. Graham are transferred from the Reserve of Officers, 6th Military District, 1st September, 1921.

The temporary rank of Lieutenant-Colonel granted to Major K. S. Cross is terminated, 30th June, 1921.

The temporary rank of Major granted to the undermentioned officers is terminated, 30th June, 1921: Captains A. A. McKay and H. Fleming Dunstan and Honorary Captains R. D. Lemon and William Hart Steel.

The temporary rank of Major granted to Honorary Captain J. T. Hollow is terminated 31st July, 1921.

Retired List—

The temporary rank of Major granted to Honorary Captain C. P. W. Dyring is terminated, 30th June, 1921.

Fourth Military District.

To be Major—

Ivan Bede Jose, M.C., 1st January, 1921.

Sixth Military District.

Reserve of Officers—

Honorary Captains J. F. Patrick and J. Graham are transferred to the Reserve of Officers, 3rd Military District, 1st September, 1921.

Notices.

The Scientific Committee of the Victorian Branch of the British Medical Association announce the following papers to be read at meetings of the Branch:

October 5, 1921:

Mr. Fay Maclure: Paper on the making and fitting of modern splints and fracture beds, together with a display of splints. (Meeting at the Alfred Hospital.)

November 2, 1921:

Discussion on Cæsarean Section. (Names of speakers to be announced later.)

NOTICE TO AUTHORS.

In July, 1919, the Directors of the Australasian Medical Publishing Company, Limited, determined that the cost of preparing blocks for the illustration of articles published in *The Medical Journal of Australia* should be borne by the Company. Prior to this date the authors were required to pay for the blocks. We have the accumulation of seven years in our keeping. Authors who require the blocks for which they have paid, are requested to apply for them as soon as possible. It is proposed to destroy all unclaimed blocks on November 1, 1921.

In a special issue of the *Commonwealth of Australia Gazette* published on September 17, 1921, the State of Queensland is proclaimed to be a place infected with plague or a place from which plague may be brought or carried to other parts of Australia.

Correspondence.

VENEREAL DISEASES.

Sir: Some time since it was suggested that a branch of the British Society for Preventing Venereal Diseases should be founded in Australia and more recently the New South

Wales Society for Fighting Venereal Diseases has come into being. At the suggestion of that Society I have taken preliminary action in Victoria and propose to assist in the formation of a society, comprising men and women, both medical practitioners and others, which shall have for its object the education of the public on the extent, the nature, the mode of prevention and the treatment of these diseases. The matter has been rendered the more important by reason of the brilliant demonstration recently given in Melbourne to the Victorian Branch of the British Medical Association by Drs. Fairley and Fowler. I felt, however, that action should not be taken without consultation with the Council of the Victorian Branch of the British Medical Association, since the corporate influence of the profession is requisite to give the movement the necessary weight and restraint. The Council of the Branch cordially approves of the idea and in the constitution which those associated with me desire; one quarter of the seats on the governing body of the proposed Association will be reserved for nominees of the Branch. When complete the constitution will be submitted to the Council of the Branch. The reasons for the formation of such a society are the facts that the money provided for treatment and diagnosis alone is inadequate, apart altogether from the problem of prevention. Why, indeed, should the public provide increased sums of money unless they understand the necessity? The time has come when the profession as a whole should use its great and legitimate influence in an organized way to deal with this scourge. The foregoing statement is made with the hope that similar methods may be adopted in every State.

Yours, etc.,

JAMES W. BARRET,

Member of Council of the British Society for the Prevention of Venereal Diseases.

Melbourne, September 22, 1921.

A FOREIGN BODY IN THE VAGINA.

Sir: The following case may be of sufficient interest for publication as a curiosity.

On September 9, 1921, I was sent for to see Mrs. C., *æt.* 24. Her husband, who delivered the message, stated "she had something in her passage."

On arrival the patient explained that, wishing to play a joke on her husband, "she had inserted a small whisky glass into the vagina." The glass had gone further than was intended and she could not remove it. On examination I found that the glass was found completely within the vagina, the solid end innermost, and had slewed so that the open end was lying against the left lateral wall and pressing against the ischium of that side. There was a good deal of spasm.

All attempts to remove it were without avail, owing to the difficulty of getting a secure hold and the spasm of the vaginal outlet.

Later, under an anæsthetic, it was removed, not without difficulty. There have been no subsequent ill effects. I think the patient now realizes that a joke can go too far! The glass was a small tumbler, 8.5 cm. deep, 3 cm. in diameter at the small end and 4.4 cm. at the large end.

Yours, etc.,

A. C. ARNOLD, M.B.,

35 Watt Street,
Newcastle, New South Wales,
September 21, 1921.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

The following hape been registered under the provisions of the *Medical Act, 1912 and 1915*, as duly qualified medical practitioners:

McGuinness, Edward John, M.B., Ch.M., 1919 (Univ. Sydney), England.

Alexander, Jessie Eleanor, M.B., 1921 (Univ. Sydney), Roseville.

Anderson-Stuart, Archibald Primrose, M.B., Ch.M., 1921 (Univ. Sydney), Double Bay.

Bauer, Reginald Francis, M.B., 1921 (Univ. Sydney), Kogarah.

Best, Leslie, M.B., Ch.M., 1921 (Univ. Sydney), Seven Hills.

Boyce, Gordon Francis, M.B., 1921 (Univ. Sydney), St. Andrew's College.

Brown, Reginald Ernest, M.B., Ch.M., 1921 (Univ. Sydney), Manly.

Carter, Alexander, M.B., Ch.M., 1921 (Univ. Sydney), Croydon.

Cunningham, Anthony Benedict, M.B., Ch.M., 1921 (Univ. Sydney), St. Vincent's Hospital.

Dive, Wilfred Royle, M.B., 1921 (Univ. Sydney), Kogarah.

Dodson, George Hirst, M.B., Ch.M., 1921 (Univ. Sydney), Woollahra.

Donnellan, John Joseph, M.B., Ch.M., 1921 (Univ. Sydney), Mosman.

Franklin, Samuel de Vere, M.B., Ch.M., 1921 (Univ. Sydney), Parramatta.

Genge, Francis Harrison, M.B., Ch.M., 1921 (Univ. Sydney), Homebush.

Gilchrist, Arthur Gillespie Stuart, M.B., Ch.M., 1921 (Univ. Sydney), Cremorne.

Hudson, Sydney Bernard, M.B., Bac. Surg., 1921 (Univ. Melbourne), Broken Hill.

Lynch, Frederick Ninian, M.B., Ch.M., 1921 (Univ. Sydney), Burwood.

McCarthy, Edward Francis, M.B., Ch.M., 1921 (Univ. Sydney), South Kensington.

McClemens, Dorothy Mary, M.B., Ch.M., 1921 (Univ. Sydney), Drummoyne.

MacDonald, William Morton Craig, M.B., 1921 (Univ. Sydney), Paddington.

McGrigor, Henry James, M.B., Ch.M., 1898; D.P.H., 1899, Univ. Aberdeen.

McKillop, Martin Joseph, M.B., Ch.M., 1921 (Univ. Sydney), Double Bay.

McLeod, Allan Peter, M.B., Ch.M., 1921 (Univ. Sydney), Drummoyne.

Nimmo, John Robertson, M.B., 1921 (Univ. Sydney), University Club.

Overend, Bruce Robson, M.B., Ch.M., 1921 (Univ. Sydney), Greenwich.

Owen, Alan Bertie Samuel, M.B., Ch.M., 1921 (Univ. Sydney), Newtown.

Percy, Clarence Ernest, M.B., 1921 (Univ. Sydney), Glebe.

Piper, Keith Allender, M.B., Ch.M., 1921 (Univ Sydney), Manly.

Porter Albert Harding, Lic. R. Coll. Surg., Edin., 1894, Lic. R. Coll. Phys., Edin., 1894, Lic. Fac. Phys., Surg., Glasg., 1894.

Porter, Edward Harvey, M.B., Ch.M., 1921 (Univ. Sydney), Carlton.

Ratcliff, Daisy Hunter, M.B., Ch.M., 1921 (Univ. Sydney), Vaucluse.

Robinson, Samuel, L.M.S.S.A., Lond., 1918.

Ryan, William Denis, M.B., Ch.M., 1921 (Univ. Sydney).

Sams, Clara Murray, M.B., 1921 (Univ. Sydney), Cremorne.

Saunders, George Lord, M.B., Ch.M., 1921 (Univ. Sydney).

Taylor, Hugh Morris, M.B., Ch.M., 1921 (Univ. Sydney).

Walker, Glaud Reay, M.B., Ch.M., 1921 (Univ. Sydney), Croydon.

Willard, Frank Trenerry, M.B., 1921 (Univ. Sydney), Stanmore.

Wippell, Walter Plantagenet, M.B., Ch.M., 1921 (Univ. Sydney).

Additional registration:

Barrow, Isaac Manly, Ch.M., 1921 (Univ. Sydney), Penrith.

Bogle, James, Ch.M., 1921 (Univ. Sydney), Royal Prince Alfred Hospital.

Diethelm, Oscar Albert Anton, Ch.M., 1921 (Univ. Sydney), Grafton.

Fisher, Ernest Frederick, Ch.M., 1921 (Univ. Sydney), West Wyalong.

Gibson, Alfred John, Ch.M., 1921 (Univ. Sydney), Sydney.

Short, Frederick, Ch.M., 1921 (Univ. Sydney), Parkes.

Slater, Constance Broadribb, Bac. Surg., 1916 (Univ. London).

Tait, Leslie Gordon, Ch.M., 1921 (Univ. Sydney).

VICTORIA.

The Undermentioned has been mentioned under the provisions of Part I. of the *Medical Act, 1915,* as a duly qualified medical practitioner:

Parer, Vincent Stanislaus, M.B., B.S., Melb., 1921, "Montserrat," Mont Albert Road, Surrey Hills.

Books Received.

SURGERY OF THE UPPER ABDOMEN, Second Edition, by John B. Deaver, M.D., Sc.D., LL.D., F.A.C.S., and Astley Paston Cooper Ashhurst, A.B., M.D., F.A.C.S.; 1921. Philadelphia: P. Blakiston's Son & Company; Royal 8vo., pp. 832, with 9 coloured plates and 198 other illustrations. Price, $14 net.

WHAT TO DO IN CASES OF POISONING, by William Murrell, M.D., F.R.C.P., 12th Edition, revised by P. Hamill, M.D., D.Sc., F.R.C.P.; 1921. London: H. K. Lewis & Company, Limited; 32mo., pp. 273. Price, 4s. 6d. net.

THE HEART: OLD AND NEW VIEWS, by H. L. Flint, M.D.; 1921. London: H. K. Lewis & Company, Limited; Royal 8vo., pp. 177, illustrated by 66 figures.

OPERATIVE DENTAL SURGERY, by J. B. Parfitt, L.R.C.P., M.R.C.S., L.D.S.; 1921. London: Edward Arnold & Company; Demy 8vo., pp. 319. Price, 21s. net.

Medical Appointments.

Dr. F. K. Abernethy (B.M.A.) has been appointed Senior Resident Medical Officer at the Fremantle Public Hospital and Dr. Ronald Cuttle (B.M.A.) Junior Resident Medical Officer.

The Commission of Public Health of Victoria has appointed Dr. R. K. Birnie (B.M.A.) Public Vaccinator at Daylesford.

Dr. H. K. Porter (B.M.A.) has been appointed Medical Superintendent of the Sydney Hospital in succession to Dr. W. Perry (B.M.A.).

Dr. W. R. Darton (B.M.A.) has been appointed Government Medical Officer at Kandos, New South Wales.

Dr. G. H. Vernon (B.M.A.) has been appointed Government Medical Officer and Visiting Surgeon to His Majesty's Prison at Thursday Island.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xxii.

Sydney Hospital: Part-Time Bio-Chemist; Dental Surgeon.

Renwick Hospital for Infants: Honorary Assistant Physician.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.)	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Manchester Unity Independent Order of Oddfellows. Mutual National Provident Club. National Provident Association.
QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.)	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIA. (Hon. Sec., 6 Bank of New South Wales Chambers, St. George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington New Zealand.

Diary for the Month.

Oct. 1.—Vic. Branch, B.M.A.: Election of Representatives of Divisions.
Oct. 4.—N.S.W. Branch, B.M.A., Council (Quarterly).
Oct. 5.—Vic. Branch, B.M.A..
Oct. 7.—Q. Branch, B.M.A..
Oct. 7.—N.S.W. Branch, B.M.A.: Annual Meeting of Delegates of Local Associations with the Council (First Day).
Oct. 8.—N.S.W. Branch, B.M.A.: Annual Meeting of Delegates of Local Associations with the Council (Second Day).
Oct. 11.—Tas. Branch, B.M.A..
Oct. 11.—N.S.W. Branch, B.M.A.: Ethics Committee.
Oct. 12.—Melb. Pædiatric Society (Vic.).
Oct. 13.—Vic. Branch, B.M.A., Council.
Oct. 13.—Brisbane Hospital Clinical Society.
Oct. 14.—N.S.W. Branch, B.M.A., Clinical.
Oct. 14.—Q. Branch, B.M.A., Council.
Oct. 14.—S. Aust. Branch, B.M.A., Council.
Oct. 18.—N.S.W. Branch, B.M.A.: Executive and Finance Committee.
Oct. 19.—W. Aust. Branch, B.M.A..
Oct. 20.—Western Medical Association (N.S.W.).
Oct. 25.—N.S.W. Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.
Oct. 26.—Vic. Branch, B.M.A., Council.
Oct. 27.—S.A. Branch, B.M.A..
Oct. 28.—N.S.W. Branch, B.M.A..

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

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